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## ACRONYMS

**AOC**.....Approximate Original Contours  
**BLM**.....United States Bureau of Land Management  
**CHIA**.....Cumulative Hydrologic Impact Assessment  
**DEQ**.....Department of Environmental Quality  
**Division**.....Utah Division of Oil, Gas and Mining  
**DOGM**.....Utah Division of Oil, Gas and Mining  
**EA**.....Environmental Assessment  
**ECDC**.....East Carbon Development Corporation  
**EIS**.....Environmental Impact Statement  
**IPA**.....Intermountain Power Agency  
**MDC**.....Minerals Development Corporation  
**MRP**.....Mining and Reclamation Plan  
**MSHA**.....Mine Safety and Health Administration  
**NRCS**.....Natural Resources Conservation Service  
**PHC**.....Probable Hydrologic Consequences  
**R2P2**.....Resource Recovery and Protection Plan  
**RCRA**.....Resource Conservation and Recovery Act  
**SHPO**.....State Historic Preservation Office  
**SITLA**.....School and Institutional Trust Lands Administration  
**SMCRA**.....Surface Mining Control and Reclamation Act  
**UDWQ**.....Utah Division of Water Quality  
**UDWR**.....Utah Division of Wildlife Resources  
**UEI**.....UtahAmerican Energy, Inc.  
**UPDES**.....Utah Pollutant Discharge Elimination System  
**USGS**.....United States Geological Survey  
**USFWS**.....United States Fish and Wildlife Service

## ACRONYMS

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## INTRODUCTION

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# INTRODUCTION

UtahAmerican Energy, Inc.(UEI) has proposed to develop new surface facilities near the mouth of Lila Canyon to mine coal in six federal leases. The application was submitted and reviewed as a significant revision to the existing Horse Canyon Mine Mining and Reclamation Plan(MRP). The leases are contained within the "North Block Logical Mining Unit" as approved by the United States Bureau of Land Management (BLM) January 1, 1994. The current permit area contains 1327.75 acres, and the Lila Canyon addition contains 4704.32 acres for a total of 6032.07 acres. The current disturbed area is about 74.26 acres, and 28.11 acres would be disturbed by the new surface facilities.

The Division first received this significant revision September 8, 1998, and after receiving additional information, the Division determined the application to be administratively complete on February 25, 1999. The Division received a letter from a landowner, Mr. Josiah Eardley, on March 30, 1999 in response to the public notice published in the Sun Advocate. He pointed out his interest in water rights he owns adjacent to the minesite. The Division gave information to this land owner and provided him an opportunity to request an informal conference. There were no requests for an informal conference.

A portion of the Turtle Canyon Wilderness Study Area is contained in the proposed addition to the permit area, and it also includes two Wilderness Inventory Units identified by the BLM as having wilderness characteristics. The application includes comments from the BLM about their management plans, and these plans are consistent with the mine plan.

Through the course of several reviews, the plan has been modified to the point that the Division now finds it complete and accurate and in compliance with the Utah Coal Regulatory Program.

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## INTRODUCTION

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SUMMARY OF PERMIT CONDITIONS

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## SUMMARY OF PERMIT CONDITIONS

*As determined in the analysis and findings of this Technical Analysis, approval of the plan is subject to the following Permit Conditions. The applicant is subject to compliance with the following Permit Conditions and has committed to comply with the requirements of these conditions as referenced in the approved Permit.*

*Accordingly, the permittee has committed to comply with the requirements of the following Permit Conditions, as specified, and in accordance with the requirements of:*

**R645-301-323,** Prior to any surface disturbing activities, the Permittee must have a qualified person determine whether the proposed addition to the permit area contains suitable habitat for the Mexican spotted owl. Depending on the results of this evaluation, the Permittee will modify the MRP in accordance with requirements of the USFWS. An alternative to this action is to limit all coal mining and reclamation activities to time periods outside the breeding season, March 1 to August 31.

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# **SUMMARY OF PERMIT CONDITIONS**

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GENERAL CONTENTS

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## GENERAL CONTENTS

### OWNERSHIP AND CONTROL INFORMATION

Regulatory Reference: R645-301-112

**Minimum Regulatory Requirements:**

The operator of the coal mine and all owners and controllers of the operation must be identified by name and address. The Division with the Applicant/Violator System must crosscheck the information provided and other sources such as DOGM inspection and enforcement records, State corporation commission or tax records. If the Division identifies any errors in the ownership or control information, the applicant must be contacted to resolve the matter immediately. If the Division discovers that none of the persons identified in the application has had any previous mining experience, the applicant will be contacted to verify this fact.

The Applicant/Violator System will be updated with new information received by the Division.

**Analysis:**

The Permittee is UtahAmerican Energy, Inc.(UEI), a Utah corporation. The plan gives the name, address and telephone number of the Permittee and its resident agent and includes the employer identification number for the Permittee. UEI will pay the abandoned mine reclamation fees.

Section 112.300 of the plan says ownership and control information is in Appendix 1-1, and Appendix 1-1 references Appendix 1-7 of Part "A" of the Horse Canyon Mine MRP for ownership and control information. Section 112.340 says identifying information about affiliated coal mining and reclamation operations is in Appendix 1-2, and this appendix references Appendix 1-9 of Part "A" of the Horse Canyon Mine MRP for this information.

Most of this ownership and control information has been previously approved as part of the Horse Canyon Mine MRP. It is possible to determine the corporate structure. While there are several affiliated companies, UEI, is only owned by one company, Coal Resources, Inc.

The plan is required to include the names, addresses, permit numbers, regulatory authorities, employer identification numbers, and Mine Safety and Health Administration (MSHA) numbers together with dates of issuance for coal mining and reclamation operations owned or controlled by the Permittee or by any person that owns or controls the Permittee, and this information is in Appendix 1-9 of the Horse Canyon Mine MRP and Appendix 1-1 of the current plan for the Lila Canyon Mine. No permitted operations are shown for Coal Resources, Inc.; PennAmerican Coal, Inc.; AmCoal Holdings, Inc.; Mill Creek Mining Company; Pinski Corporation; American Coal Sales Company; West Virginia Resources, Inc.; Pennsylvania Transloading, Inc.; Sunburst Resources, Inc.; Ohio Valley Resources, Inc.; and Spring Church Coal Company. These companies do not have associated coal mining and reclamation operations.

Section 112.500 of the text and Plates 4-1 and 5-4 show surface and coal ownership in and contiguous to both the existing permit area and the proposed addition. Section 112.500 of the plan

## GENERAL CONTENTS

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includes the names and addresses of the surface and coal owners, and this information is consistent with the information on the plates.

The plan shows MSHA identification numbers for both the Horse Canyon and Lila Canyon Mines and for the refuse pile. An MSHA identification number is only required for the portion of the refuse pile that will hold coal processing waste whereas the definitions in R645-100 also include underground development waste as part of coal mine waste.

According to this section of the plan, there are no lands, interests in lands, options, or pending bids on interests held or made by the Permittee for lands contiguous to the proposed addition to the permit area. Plates 4-1 and 6-2 show federal leases to the south of the proposed addition to the permit area that are labeled "Potential Area of Future Mining."

### Findings:

Information in the plan is adequate to meet the minimum ownership and control information requirements of the regulations.

## VIOLATION INFORMATION

Regulatory Reference: R645-301-113

Minimum Regulatory Requirements:

The application must inform the Division of any of the following:

- (1) State or Federal permits suspension or revocation
- (2) Bond or other security forfeiture in the last five years;
- (3) Any State or Federal violations received in the last three years by the applicant or any subsidiary, affiliate, or persons controlled by or under common control with the applicant. All outstanding violations (regardless of date) must also be disclosed.

The Division will review all available information and will not issue a permit if any operation owned or controlled by the applicant or linked to the applicant is in violation of SMCRA or the State Program or any State or Federal environmental law.

The Division will notify the applicant of the violation, suspension or forfeiture hindering their current application for permit and give the applicant an opportunity to rebut the findings. The Division will keep the Applicant Violator System updated.

### Analysis:

According to the plan, neither UEI nor any subsidiary, affiliate, or persons controlled by or under common control with them has had a federal or state permit suspended or revoked in the past five years, and these same entities have not forfeited a performance bond or similar security. Appendix 1-3 contains a list of violations received by affiliated companies for the past three years, but Appendix 1-3 says these violations are listed in Appendix 1-8 of the Horse Canyon Mine MRP. There is one violation that has yet to be terminated, and, according to the plan, administrative proceedings are ongoing.

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The plan contains the required information to comply with R645-301-113. See the Division's decision document for the 510C (Applicant Violator System [AVS]) check.

### Findings:

Information provided in the plan is adequate to satisfy the violation information requirements of the regulations.

## RIGHT OF ENTRY

Regulatory Reference: R645-301-114

### Minimum Regulatory Requirements:

Documents giving legal right to enter the permit area must be detailed in the application by date, type of document, land description and rights claimed. Any pending litigation over these legal rights must be disclosed.

The written consent of the landowner for the extraction of the coal by surface mining methods must also be included when the surface and mineral owners are different. Also a copy of the conveyance that grants the legal authority to extract the coal by surface methods will be included.

The Division does not have the authority to adjudicate property rights disputes.

### Analysis:

UEI has right of entry to 5,544.01 acres of federal coal in six federal leases purchased in June 2000 from Intermountain Power Agency (IPA). The BLM has approved transfer of the federal leases from IPA to UEI. Table 4-2 of the plan contains complete acreage figures for federal, state, and private surface and mineral rights.

Parts of Sections 33 and 34, Township 15 South, Range 14 East, are in the current Horse Canyon permit area, and, according to Plate 5-4, they contain unleased federal coal. Therefore, while they may be considered part of the current permit area, the Permittee has no right to mine these areas.

The Permittee bases its legal right to enter and begin coal mining and reclamation operations in the surface facilities portion of the proposed addition to the permit area on two BLM letters, copies of which are contained in Appendix 1-6. The surface facilities would be built in Section 15 of Township 16 South, Range 14 East. The land is managed by the BLM, but it is not in the federal coal leases. The plan includes copies of letters from the BLM indicating they are prepared to grant right of entry. Appendix 1-6 contains copies of these letters dated December 26, 2000, and January 4, 2001, from Tom Rasmussen of the BLM to Mary Ann Wright, the Division's Associate Director of Mining. This case is in litigation, and the BLM is waiting for a decision from the Interior Board of Land Appeals whether to grant the appellants a stay. When this issue is resolved, the BLM will be in a position to grant the right of way.

The Permittee has fulfilled the requirement to include a description of the documents upon which it bases its right of entry and so is in compliance with R645-301-114. However, before the

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Permittee can begin construction in the surface facilities portion of the proposed addition to the permit area, it must obtain right of entry from the BLM.

The School and Institutional Trust Lands Administration (SITLA) commented that they administer lands in the current permit area (not the Lila Canyon Tract), including coal resources. However, the existing Horse Canyon Mine MRP is for reclamation only.

SITLA also commented that UEI presently has no applications, leases, permits, rights of way, or rights of entry to conduct any activities on or within these lands. SITLA does not manage the coal resources within the proposed addition to the permit area, only the surface of some areas, so right of entry is not needed unless UEI needs surface access which is not proposed at this time.

Since there will be no surface mining and no fee coal will be mined, an agreement regarding severed private surface and mineral estates is not required.

**Findings:**

Information provided in the plan is adequate to meet the minimum right of entry requirements of the regulations.

All documentation consisting of lease ownership and the feasibility to mine and reclaim the mine has been submitted in compliance with R645-301-114. However, before the Permittee can begin construction of the surface facilities of the Lila Canyon mine, a Right-of-Entry must be obtained from the BLM.

**LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS**

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

**Minimum Regulatory Requirements:**

The application will describe and identify the lands (on a map) subject to coal mining over the life of the operation, including the size, sequence, and timing of the mining anticipated and permit boundaries. Coal mining and reclamation operations may only occur on the lands identified on the maps submitted and that are subject to the performance bond.

A public notice advertisement will contain a map or description of the precise location and boundaries of the proposed permit area. So that local residents can identify the area, the map must have a north arrow and may include local landmarks.

**Analysis:**

According to the plan, the proposed addition to the permit area is not in an area designated as unsuitable for mining, and the Permittee is not aware of petitions to designate the area as unsuitable. The Division is unaware of any designation of the area as unsuitable for mining. Mining operations will not be conducted within 300 feet of an occupied dwelling, but they would be within 100 feet of an Emery County road.

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The plan says UEI has received permission from Emery County to construct mining facilities and conduct mining operations within 100 feet of the road, and Appendix 1-4 includes copies of two letters from Emery County documenting this approval. The January 10, 2001, and March 27, 2001, letters signed by Rex Funk, Emery County Road Supervisor, say UEI is authorized to conduct mining activities within 100 feet of the public road. The letters also indicate a 6-foot chain link fence will be installed adjacent to the road right of way near the surface facilities area. A March 22, 2001, letter signed by Bryant Anderson, County Zoning Administrator, gives permission to install a 60-inch culvert under the road and acknowledges that traffic may be limited during installation of this culvert.

Table 4-2 contains legal descriptions of both the current permit area and the proposed addition to the permit area.

### **Findings:**

Information provided in the plan adequately addresses the unsuitability claims and legal description portions of the regulations.

## **PERMIT TERM**

Regulatory References: 30 CFR 778.17; R645-301-116.,

Minimum Regulatory Requirements:

Each permit application will state the anticipated or actual starting and termination date of each phase of the coal mining and reclamation operation and the anticipated number of acres of land to be affected during each phase of mining over the life of the mine. If the applicant requires an initial permit term in excess of five years in order to obtain necessary financing for equipment and the opening of the operation, the application will be complete and accurate covering the specified longer term; and show that the proposed longer term is reasonably needed to allow the applicant to obtain financing for equipment and for the opening of the operation with the need confirmed, in writing, by the applicant's proposed source of financing.

### **Analysis:**

The permit term for which the Permittee is applying is five years. The permit would carry with it the right of successive renewal which would allow for a longer mine life. The beginning of construction is planned for 2001 with mining operations ending in 2025. This assumes adjacent federal leases can be acquired. The plan includes acreage figures for surface and subsurface federal, state, and fee lands.

A certificate of liability insurance meeting Division requirements is in Appendix 8-2 & 8-3.

No facilities or structures would be used in common with another coal mining and reclamation operation.

**Findings:**

Information in the application is adequate to meet the minimum permit term requirements of the regulations.

**PUBLIC NOTICE AND COMMENT**

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

**Minimum Regulatory Requirements:**

After the application has been determined "administratively complete," an advertisement must be placed in a local newspaper of general circulation in the locality of the proposed surface coal mining and reclamation operation at least once a week for four consecutive weeks. A copy of the advertisement as it will appear in the newspaper will be submitted to the regulatory authority.

At a minimum, the following will be included in the ad:

- (1) The name and business address of the applicant.
- (2) A map or description
- (3) The location where a copy of the application is available for public inspection.
- (4) The name and address of the Division where written comments, objections, or requests for informal conferences on the application may be submitted.
- (5) If an applicant seeks a permit to mine within 100 feet of the outside right-of-way of a public road or to relocate or close a public road, except where public notice and hearing have previously been provided for this particular part of the road; a concise statement describing the public road, the particular part to be relocated or closed, and the approximate timing and duration of the relocation or closing.
- (6) If the application includes a request for an experimental practice, a statement indicating that an experimental practice is requested and identifying the regulatory provisions for which a variance is requested.

The Division will notify in writing local governmental agencies and all Federal or State governmental agencies involved in or with an interest in the permit process.

Documentation of the public notice and comment period required for the Permit should be incorporated as part of the Permit.

**Analysis:**

Appendix 1-5 contains copies of the newspaper advertisement and proof of publication. The Division received a comment from one land owner expressing concern about the mine's potential effects on his water. The Division responded to the land owner with information and provided him an opportunity to request an informal conference. There were no requests for an informal conference.

**Findings:**

Information in the plan is adequate to meet the requirements of this section of the regulations.

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**FILING FEE**

Regulatory Reference: 30 CFR 777.17; R645-301-118.

**Minimum Regulatory Requirements:**

Each permit application to conduct coal mining and reclamation operations pursuant to the State Program will be accompanied by a fee of \$5.00.

**Analysis:**

The filing fee is not required for a significant revision.

**Findings:**

Information in the plan is adequate to meet the requirements of this section of the regulations.

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**ENVIRONMENTAL RESOURCE INFORMATION**

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## **ENVIRONMENTAL RESOURCE INFORMATION**

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR Sec. 783., et. al.

### **GENERAL**

Regulatory Reference: 30 CFR Sec. 783.12; R645-301-411, -301-521, -301-621, -301-721.

Minimum Regulatory Requirements:

Include a description of the existing, pre-mining environmental resources within the proposed permit area and adjacent areas that may be affected or impacted by the proposed underground mining activities.

#### **Analysis:**

Environmental Resource information as outlined in R645-301-411, R645-301-521, R645-301-621, and R645-301-721 is intended to describe the pre-mining conditions and an accounting of all resources on and adjacent to the proposed permit area. The Permittee has collected baseline information to describe the existing resources as outlined in the following sections.

#### **Findings:**

The Permittee has met the minimum requirements of this section.

### **PERMIT AREA**

Regulatory Requirements: 30 CFR Sec. 783.12; R645-301-521.

Minimum Regulatory Requirements:

Describe and identify the lands subject to surface coal mining operations over the estimated life of those operations and the size, sequence, and timing of the subareas for which it is anticipated that individual permits for mining will be sought.

#### **Analysis:**

Plate 5-4 and other maps show the permit boundaries for the Horse Canyon Mine. The permit boundaries are divided into Permit Area A, which is the Horse Canyon project that is now being reclaimed and Permit Area B, which is the proposed Lila Canyon Mine. Plate 5-5, Mine Map shows the sequence and timing for mining operations for the Lila Canyon Mine. The Permittee shows areas of potential future mineing on Plate 5-1.

The legal description of the permit area is shown in Table 4-2. The table shows the acres of State, federal and fee land.

#### **Findings:**

The Permittee has met the minimum requirements of this section.

## HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.12; R645-301-411.

### Minimum Regulatory Requirements:

Describe and identify the nature of cultural historic and archeological resources listed or eligible for listing on the National Register of Historic Places and known archeological sites within the proposed permit and adjacent areas. The description shall be based on all available information, including, but not limited to, information from the State Historic Preservation Officer and local archeological, historical, and cultural preservation groups.

Identify and evaluate important historic and archeological resources that may be eligible for listing on the National Register of Historic Places, through the collection of additional information, conduct of field investigations, or other appropriate analyses.

### Analysis:

Appendix 4-1 of the plan contains information from three cultural resource surveys, including one done specifically for the proposed facilities area. There are several cultural resource sites in the vicinity, but only an isolated artifact was found in the proposed disturbed area. In Horse Canyon is a tree inscribed by Sam Gilson, a prominent rancher and promoter of the uses of Gilsonite. According to the Division of State History, the plan, and the text of the current MRP, this site is not listed on the National Register of Historic Places but is eligible for listing. This tree is not in the proposed disturbed area and will not be affected by the proposed operations.

The information in the plan is considered adequate. Maps and reports on archaeological resources have been marked confidential and placed in the Division's confidential file.

There are no cemeteries in or within 100 feet of the proposed addition to the permit area, and it contains no units of the National System of Trails or Wild and Scenic Rivers system.

### Findings:

Information provided in the plan is considered adequate to meet the requirements of this section of the regulations. The Division will keep confidential any information that would reveal the location of any of the cultural resource sites.

## CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.18; R645-301-724.

### Minimum Regulatory Requirements:

Provide a statement of the climatological factors that are representative of the proposed permit area, including: the average seasonal precipitation; the average direction and velocity of prevailing winds; and, seasonal temperature ranges. Additional data may be requested as deemed necessary to ensure compliance with other regulatory requirements.

### Analysis:

The proposed mine site is in an area that receives an average annual precipitation of approximately 14 inches. The Permittee indicates an average annual precipitation as high as 13.69

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## ENVIRONMENTAL RESOURCE INFORMATION

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inches: the information was downloaded from the Western Regional Climate Center and is shown in Table 7-1A in Section 724.413. Table 7-1A shows the average maximum and minimum temperatures by month over thirty years (1958 – 88) for the Sunnyside area. Table 7-1A also includes average annual precipitation by month and annually (13.69 inches annually) and average total snowfall by month and annually (36.5 inches annually).

Prevailing winds as reported in Section 742.412 are from west to east at a speed of 2.7 knots or 3.1 mph (knots x 1.1 = mph). Tom Ordh, Meteorologist with the Division of Air Quality, Department of Environmental Quality (DEQ) indicated that the open areas such as Castle Valley would have a wind speed of six miles per hour and canyon winds would be faster, perhaps ten miles per hour.<sup>1</sup> Mr. Ordh indicated that the prevailing winds along the canyon would flow off the plateau. Down in the canyon the wind would be terrain driven. Ordinarily, the winds are upslope in the morning and downslope in the afternoon.

The closest weather station to the Lila Canyon Lease is located at Sunnyside, Utah. Based on relatively close proximity and similar locations, the west exposure of the Book Cliffs, the data from this station will be used to verify precipitation amounts and other weather conditions for the Lila Canyon Project.

### Findings:

Information provided in the proposed amendment is considered adequate to meet the requirements of this section, however the Division recommends installation of a weather station with a wind gauge to the Permittee.

## VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.19; R645-301-320.

### Minimum Regulatory Requirements:

Provide a map that delineates existing vegetative types and a description of the plant communities within the area affected by surface operations and facilities and within any proposed reference area. The description shall include information adequate to predict the potential for reestablishing vegetation. The map or aerial photograph is required, sufficient adjacent areas shall be included to allow evaluation of vegetation as important habitat for fish and wildlife for those species of fish and wildlife as identified under the fish and wildlife resource information.

### Analysis:

Appendices 3-1 and 3-2 contain vegetation information about the Horse Canyon and "South Lease" areas. Additional information is in the existing Horse Canyon Mine MRP. These studies were done in 1981, 1982, 1983, 1985, 1999, and 2000. With the exceptions of a study by Patrick Collins in Appendix VIII-1 in the current Horse Canyon and the 1999 and 2000 vegetation inventories in Appendix 3-2 of the plan, the plan does not show who conducted the studies as

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<sup>1</sup> Telephone conversation on 5/17/01 with Tom Ordh, meteorologist, Division of Air Quality, Department of Environmental Quality.

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required in R645-301-120. According to verbal information from the Permittee, this information is no longer available.

Figure 1 in Appendix 3-2 is a map showing the vegetation communities and the reference area in relation to the proposed disturbance, and Plate 3-2 shows vegetation communities of the proposed addition to the permit area.

The vegetation inventory done in 1999 is for the grass/shrub community and a corresponding reference area to the west of the proposed disturbed area. Predominant species in both areas were cheatgrass, Salina wild rye, snakeweed, blue grama, needle and thread grass, Indian ricegrass, galleta, and purple three awn. Total vegetative cover in the proposed disturbed area was 39.7 percent, and it was 44.8 percent in the reference area. The study includes a map showing the vegetation communities in relation to the proposed disturbance, but it does not show sample locations.

On November 28, 2000, vegetation cover was measured in the proposed disturbed pinyon/juniper community. Only ten samples were taken, but each sample was 0.01 acres, a relatively large sample plot. The mean cover value was 33.9 percent, and cover was dominated by Utah juniper with 80.0 percent relative cover. Other species included Salina wild rye, fourwing saltbush, prickly pear cactus, snakeweed, and galleta.

A table in the 1999 study shows woody plant densities in the proposed disturbed grass/shrub and pinyon/juniper communities and in the reference area. Densities were 6,260; 1,560, and 7,200 stems per acre for these three communities, respectively. In the grass/shrub areas, 88 percent of the woody plants were snakeweed, a plant that is poisonous to cattle and sheep.

Appendix 3-7 contains productivity estimates done by George Cook, formerly of the Natural Resources Conservation Service (NRCS), for the area proposed to be disturbed and associated reference area. Both the grass/shrub proposed disturbed and reference areas had production of about 850 pounds per acre, and the pinyon/juniper community had production of about 250-300 pounds per acre.

Mr. Cook rated the three areas as being in good range condition, but it is unusual for an area with 28 percent relative cover from cheatgrass to be considered in good range condition. It is possible that although cover from cheatgrass was high, cheatgrass production may have been low, and production is the parameter used in range condition assessments.

Vegetation cover, productivity, and woody plant density were the only parameters measured in the pinyon/juniper area. The Permittee did not measure cover from rock, litter, or cryptogams. Regulation R645-301-321 requires only a description of the plant communities in the proposed disturbed area, adequate to predict the potential for reestablishing vegetation. This regulation specifically includes productivity. The Division's guidelines recommend measuring cover from rock, litter, and cryptogams, but the Division does not believe this information is essential for predicting the revegetation potential for the site. The revegetation and soils reclamation plans have been designed to provide for surface rock cover, and other aspects of ground cover should become established as vegetation becomes established at reclamation.

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The Division considers the information in the plan to be adequate as baseline information, and the reference area is acceptable as a success standard. A large enough area was sampled that the Division feels it adequately represents the proposed disturbed area, but the "Vegetation Information Guidelines," which are referenced in the regulations as methods for measuring revegetation success, give minimum sample size criteria that were not met in the baseline sampling. To apply a baseline revegetation standard, the Division would also need measurements of cover from litter that were not included in sampling the pinyon/juniper area.

Appropriateness of the reference area is discussed in the section of this review discussing revegetation success standards.

### Findings:

Information provided in the plan is considered adequate to predict the potential for reestablishing vegetation and is thus adequate to meet the requirements of this section of the regulations.

## FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21; R645-301-322.

### Minimum Regulatory Requirements:

The application shall include fish and wildlife resource information for the permit area and adjacent area. The scope and level of detail for such information shall be determined by the Division in consultation with State and Federal agencies with responsibilities for fish and wildlife and shall be sufficient to design the protection and enhancement plan required under the operation and reclamation plan.

Site-specific resource information necessary to address the respective species or habitats shall be required when the permit area or adjacent area is likely to include:

- (1) Listed or proposed endangered or threatened species of plants or animals or their critical habitats listed by the Secretary under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), or those species or habitats protected by similar State statutes;
- (2) Habitats of unusually high value for fish and wildlife such as important streams, wetlands, riparian areas, cliffs supporting raptors, areas offering special shelter or protection, migration routes, or reproduction and wintering areas; or
- (2) Other species or habitats identified through agency consultation as requiring special protection under State or Federal law.

### Analysis:

#### Wildlife Information

Wildlife habitat is discussed in Section 322.220, and Plate 3-1 shows habitat areas for elk, mule deer, Rocky Mountain bighorn sheep, pronghorns, and raptors. According to Plate 3-1, the proposed disturbed area contains habitat for Rocky Mountain bighorn sheep and mule deer, and pronghorns and raptors are nearby. The proposed addition to the permit area includes areas designated as critical habitat for elk and deer, but the proposed disturbed area does not include these habitats.

Raptor surveys were conducted in the area in 1990, 1998, 1999, and 2000. Plate 3-1 shows locations of five nests within about one mile of the proposed surface facilities, and Appendix 3-5 contains further information, including results of the 2000 raptor survey. According to Plate 3-1, all of the nests near Lila Canyon were golden eagle nests. Section 322.220 says the entire permit area plus an area within 1 mile of the proposed surface facilities were surveyed for raptor nests. Plate 5-3 shows raptor nests and also includes subsidence limits, and this information is consistent with what is shown on Plate 3-1. According to Plate 5-3, two golden eagle nests are within the subsidence area.

The Permittee commits to conduct raptor surveys within one year prior of all proposed new construction or potentially disruptive mining activity. This should be done in all suitable habitat within a one mile radius of these activities and needs to include the main facilities area. If any of the nests near the proposed facilities is active when the Permittee begins construction, it may be necessary to delay the start of construction until the nest is no longer being used.

The plan indicates the Permittee has consulted with the U.S. Fish and Wildlife Service (USFWS), the Utah Division of Wildlife Resources(UDWR), and the BLM concerning raptor nests in the vicinity of the mine. These agencies determined there is a high probability that any golden eagle nests within one-half mile of the surface facilities would be abandoned.

Information about other wildlife species includes a statement that many birds of high federal interest would not inhabit the permit area because the intermittent stream channels lack riparian vegetation. The plan also references a UDWR publication entitled "Fauna of Southeastern Utah and Life Requisites Regarding their Ecosystems." This publication, which contains general information about species in the area is available to the Division and the public.

### **Threatened and Endangered Species**

Table 3-1 lists seven threatened or endangered species the plan says may occur in Emery County or that could be affected by the mine. Appendix 3-3 contains a February 4, 1998, letter from the USFWS listing threatened and endangered species that occur in Emery County.

The proposed addition to the permit area contains habitat for some species on the list of threatened or endangered species in Emery County, but these species have not been found in on-the-ground surveys. Each species occurring in Emery County is discussed below.

The USFWS commented that the Permittee needs to assess vegetation in the proposed addition to the permit area to determine whether southwestern willow flycatcher habitat exists. According to their letter, breeding habitat is typified by areas of dense willow or willow mixed with a variety of riparian shrubs and small trees.

The plan documents that the proposed addition to the permit area does not contain habitat for southwestern willow flycatchers. There are no perennial water sources or riparian areas in either the current permit area or the proposed addition, and according to Division representatives who have visited springs in the permit area, there are few, if any, willows or similar riparian-type vegetation associated with the seeps and springs in the proposed addition to the permit area. There may be a

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few willows or shrubs, but there are no dense patches that would satisfy the habitat requirement of the southwestern willow flycatchers.

Bald eagles are fairly common winter residents of Utah, and they could visit the area. However, they generally like to roost in large trees and such trees do not exist in the proposed disturbed area. Therefore, it is unlikely bald eagles will be adversely affected.

Four fish species of the Upper Colorado River drainage are listed as threatened or endangered, and although the mine would not affect them directly, water usage has been determined to adversely affect these species. As discussed in the fish and wildlife protection portion of this technical analysis, the mine is expected to use about 21.3 acre-feet of water annually, including water lost by evaporation through mine ventilation. A mitigation fee is required when the annual depletion exceeds 100 acre-feet.

Black-footed ferrets have historically been found in eastern Utah, but, with the exception of the population recently reintroduced to the Uintah Basin, there have been no confirmed sightings in recent years. They are considered to be extirpated from Emery County. In addition, habitat of the proposed disturbed area does not meet the requirements of the black-footed ferret.

The following discussion on the distributions of threatened and endangered plant species is based on information in *A Utah Flora* and verbal information from Bob Thompson, an expert botanist with the U.S. Forest Service in Price.

Barneby reed-mustard (*Schoenocrambe barnebyi*) grows at elevations of about 5,600 to 5,700 feet on the Chinle formation. The proposed disturbed area is at a higher elevation, and it does not contain the Chinle Formation. Therefore, the area is not considered habitat for this species.

The reported elevation range for Jones cycladenia (*Cycladenia humilis* Var. *jonesii*) overlaps the proposed disturbed area, but it grows in sandy gypsiferous soils derived from the Cutler, Summerville, and Chinle Formations, and these are not found in the proposed addition to the permit area.

Last chance Townsendia (*Townsendia aprica*) grows in salt desert shrub and pinyon-juniper communities on clay or clay-silt exposures of the Mancos Shale. It has been found mainly in the Fremont Junction area and not on the east side of the San Rafael Swell.

The Maguire daisy (*Erigeron maguirei*) has only been found in a few places in the San Rafael Swell and in Capitol Reef National Park in canyon bottoms in the Wingate and Navajo Sandstone formations. There is essentially no possibility this species could occur in the proposed addition to the permit area.

The Winkler cactus (*Pediocactus winkleri*) is a tiny plant that grows in salt desert shrub communities at lower elevations than those in the proposed disturbed area. Its distribution is more to the west, and it is unlikely it occurs in the proposed addition to the permit area.

Three cactus species are included on the USFWS lists. The San Rafael cactus or Despain footcactus (*Pediocactus despainii*) is very difficult to find and grows in open pinyon/juniper

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communities in and on the edges of the San Rafael Swell. This is the type of habitat in the proposed disturbed area, and, according to Bob Thompson of the Forest Service, there is potential this species could occur in the area. However, the plan indicates the Permittee's consultant searched for this plant and did not find it ( Appendix 3-4).

According to Mr. Thompson, the Wright fishhook cactus (*Sclerocactus wrightiae*) also has potential of occurring in the area. It grows in salt desert shrub and grass/shrub to juniper communities in soil derived from Mancos Shale and other formations. The Permittee's consultant also searched for and did not find this species (Appendix 3-4).

The Division received comments from the USFWS dated April 14, 1999, October 14, 1999, and April 28, 2000. They said the Division had responded thoroughly to their concerns and concurred with the Division's findings concerning threatened and endangered species.

In July 2001, the Division became aware of the potential that the Mexican spotted owl, a listed threatened species, might possibly occur in the vicinity of the proposed mine. The USFWS had not previously included this species in its correspondence to the Division, but on July 16, 2001, the Division wrote the USFWS requesting additional consultation and its official determination regarding this species for the Lila Canyon Mine location.

The USFWS responded on July 18, 2001, stating that the species list for Carbon and Emery counties was updated in February 2001 to include the Mexican spotted owl. They recommended that the Division conduct a field evaluation with qualified experts to determine if further analysis and/or surveys for Mexican spotted owls is appropriate for the Lila Canyon area. (Frank Howe, UDWR, is the only qualified person in Utah capable of conducting this field evaluation, according to a phone conversation with Laura Romin, USFWS on July 16, 2001.) Following the field evaluation, the proposed mine should be reviewed to determine if it will affect the Mexican spotted owl or its critical habitat. If it determined by the Division with the written concurrence of the USFWS that the action is not likely to affect this species or its critical habitat, the consultation is complete and no further action is necessary. Formal consultation will be required if the Division determines the proposal is likely to adversely affect this species or if it will result in jeopardy or adverse modification of its critical habitat.

Prior to any surface disturbing activities, the Permittee needs to have a qualified person determine whether the proposed addition to the permit area contains suitable habitat for the Mexican spotted owl. Depending on the results of this evaluation, it may be necessary to further modify the MRP. An alternative to this action is to limit all coal mining and reclamation activities to time periods outside the breeding season, March 1 to August 31.

**Findings:**

Information in the application is not adequate to meet the requirements of the fish and wildlife information section of the regulations. The following stipulation needs to be added to the permit:



**R645-301-323,** Prior to any surface disturbing activities, the Permittee must have a qualified person determine whether the proposed addition to the permit area contains suitable habitat for the Mexican spotted owl. Depending on the results of this evaluation, the Permittee will modify the MRP in accordance with requirements of the USFWS. An alternative to this action is to limit all coal mining and reclamation activities to time periods outside the breeding season, March 1 to August 31.

## SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.21, 817.200(c); R645-301-411, -301-220.

### Minimum Regulatory Requirements:

Provide adequate soil survey information on those portions of the permit area to be affected by surface operations or facilities consisting of a map delineating different soils, soil identification, soil description, and present and potential productivity of existing soils.

Where selected overburden materials are proposed as a supplement or substitute for topsoil, provide results of the analysis, trials and tests required. Results of physical and chemical analyses of overburden and topsoil must be provided to demonstrate that the resulting soil medium is equal to or more suitable for sustaining revegetation than the available topsoil, provided that trials and tests are certified by an approved laboratory. These data may be obtained from any one or a combination of the following sources: U.S. Department of Agriculture Soil Conservation Service published data based on established soil series; U.S. Department of Agriculture Soil Conservation Service Technical Guides; State agricultural agency, university, Tennessee Valley Authority, Bureau of Land Management or U.S. Department of Agriculture Forest Service published data based on soil series properties and behavior; or, results of physical and chemical analyses, field site trials, or greenhouse tests of the topsoil and overburden materials (soil series) from the permit area. If the permittee demonstrates through soil survey or other data that the topsoil and unconsolidated material are insufficient and substitute materials will be used, only the substitute materials must be analyzed.

### Analysis:

Chapter 2, Soils, Sections 210 through 224, discusses the soil resources within the proposed Lila Canyon Mine and their potential for soil salvage for future reclamation. Elevation of the proposed mine facilities is from 5,800 to 6,500 feet. The average annual precipitation is 12 - 14 inches with the majority of the precipitation coming in Fall, Winter and early Spring. The vegetation is primarily pinyon-juniper and sage-grass. Soil productivity of existing soils was determined by Mr. George Cook from NRCS, and results are shown in Appendix 3-7.

The NRCS is currently compiling information for the Emery County Order III soil survey. Relevant portions of this unpublished Order III soil survey are included in Appendix 2-2, such as typical soil pedon descriptions for the four soil map units identified within the mine surface facilities area. The regional Soil Map (Plate 2-1) accompanies this appendix.

An Order 1 soil survey was performed in August 1998 by Mr. Daniel Larsen, Soil Scientist, Environmental Industrial Services (EIS). His report is located in Appendix 2-3. (An addendum attached to Appendix 2-3 is for the proposed fan portal site soils.) The survey contains soil descriptions, soil pedon descriptions, soil salvage suitability analysis, laboratory soil testing data, field soil profile descriptions, soil and landscape photographs, a soils map, and a salvageable-soils map. All mapping and soil survey work were performed according to the standards of the NRCS's National Cooperative Soil Survey. Each soil was classified according to current, unpublished NRCS soil taxonomy, and correlated to a specific soil series:

DSH	Strych fine sandy loam variant, 3 to 8 % slopes
SBG	Strych <b>bouldery</b> fine sandy loam, 5 to 15 % slopes
VBJ	Strych <b>very bouldery</b> fine sandy loam, 5 to 15 % slopes
XBS	Strych <b>extremely bouldery</b> sandy loam, 10 to 45 % slopes
RBL	Rubbleland-Strych-Gerst complex, 20 to 70 % slopes
RBT	Rock outcrop - Travessilla family complex (Atchee Series)

The RBT soil unit references the Travessilla family complex; however, the Travessilla family has been revised by NRCS to the Atchee Series. Six soil map units were identified. From the soil description sheet and Plate 2-2, the Division notes that the canyon bench holds deep soils, stabilized from wind erosion by a surface layer of cryptogams, dried plant litter, boulders and live plant cover. The A horizon layer varies due to position on the slope from 3 inches (at sample site LC 1 through 3) to 26 inches deep (at sample site LC 4). The B horizon stretches from 31 - 60 inches in the profile and is the zone of accumulation of carbonates. The deepest soils are pockets of colluvium from the cliffs above. The soils are underlain by sandstone bedrock, except at the location of the fan portal where shale and burned coal cover the sandstone rock layer. Shale was also encountered at LC 3 and LC 5 (see discussion of SAR and EC below).

Soils are subject to extremes of temperature. On August 6, 1998 at 11:30 a.m., the temperature of the bare soil at location LC4 was 130 °F. At a depth of 20 inches, the temperature was 65 °F. These soils are in a mesic temperature regime (mean annual soil temperature at 50 cm is < 59 °F) as estimated from the mean annual air temperature, reported in Section 220, of 46 °F. Mr. Larsen has judged the moisture regime to be on the aridic side of ustic, which is to say that at a depth of 20 inches (50 cm), there is a difference in soil temperature greater than 9 °F between summer and winter and the soil moisture control section (from 12 to 35 inches deep for sandy soil) is dry for 90 or more cumulative days in most years, but it is not dry in all parts for more than half the time that the soil temperature is above 9 °F at a depth of 50 cm.<sup>1</sup>

#### *Soil Characterization*

Soil pedons descriptions were recorded on standard NRCS forms and are provided in Appendix D within Appendix 2-3. The soil horizons were sampled and analyzed according to the DOGM guidelines for topsoil and overburden<sup>2</sup>. Total nitrogen and available phosphorus were not analyzed at this time; these parameters can be tested at reclamation. Soil texture, rock fragment content ( percent by volume), and Munsell color were determined in the field. Generalized soil properties, including percent surface stones and boulders, are summarized in Table 3.21, Properties of Soil Map Units on page 9 of Appendix 2-3. Soil sampling locations are shown on Plate 2-2, Detailed Soils Map of the Mine Facilities Site.

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<sup>1</sup>Soil Survey Staff. 1990. Keys to Soil Taxonomy, fourth edition. SMSS technical monograph no.6. Blacksburg, Virginia. p 33 - 35.

<sup>2</sup>Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

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Soil samples were sent to InterMountain Laboratories, Inc. for analysis. Appendix C of Appendix 2-3 contains the laboratory data sheets for all analysis on the 22 samples and duplicate analysis. Overall, soil laboratory test results show a good rating for soil materials (Appendix B of Appendix 2-3), except as noted below:

**pH** is near neutral in the upper horizons, increasing and approaching pH 8.0 down the profile. At one sample location, LC3, pH 8.0 was exceeded at a depth of 24 - 48 inches. At this depth, LC3 soil was rated poor for a pH of 8.6.

**Electrical Conductivity (EC) and Sodium Absorption Ratio (SAR)** were below 1.0, except in samples LC3 from 48-55 inches deep and LC5 from 40-58 inches deep. For sample LC3 48-55 inches, the SAR was 18, Exchangeable Sodium Percentage = 22 percent, and EC of 2.48 mmhos/cm (and pH = 7.3). Since the SAR is greater than 15, soil materials below 48 inches are considered unacceptable for salvage. For sample LC5 40-58 inches, the SAR measured 15 with an EC value of 8.89 mmhos/cm (and pH 8.2). The SAR is rated unacceptable for coarse-textured soils and the EC is rated poor; therefore, soil materials below 40 inches are considered marginal at best for reclamation. Sample LC10 0-4 inches had an EC of 2.58 mmhos/cm which has a rating of fair.

**Available water holding capacity** values fell predominantly into the "fair" range after correction for coarse fragments. Notable exceptions to the fair category were LC1 below 10 inches, LC11 and LC12 entire profiles, LC5 below three inches that were all poor.

The **percent rock content** within the proposed facilities area is the main deterrent for soil salvage suitability based on the current Division Guidelines (citation previously noted). Appendix 2-3 states that native soils with a higher rock content than the current Guidelines allow, can be salvaged.

Organic matter content is relatively low in these soils. Generally, the surface soils ranged between 1.0 to 1.5 percent organic matter and the subsoils were about 0.5 percent. A calcic horizon was verified in soil pedons LC1, LC5 and LC6 with  $\text{CaCO}_3$  ranging between 20 to 21 percent. Pedons LC3 and LC4 have some  $\text{CaCO}_3$  accumulation in the subsoil but is less than the 15 percent needed to be classified as a calcic horizon. Below the calcic horizon, at depths of 30 inches, the analytical results for these samples show the soluble calcium decreasing and magnesium increasing with depth. (Usually, the reverse is the case where calcium exceeds magnesium in the soil solution, because calcium is retained much more readily than magnesium on soil colloid exchange sites.) But in this case, calcium is being removed from the soil solution by calcium carbonate precipitation in the calcic layer. As a result, soluble magnesium exceeds soluble calcium in the lower soil horizons.

In accordance with R645-301-232.200, since the A horizon is less than six inches deep, the topsoil recovered will be a mix of both the A and B horizon soils. Depths of salvage range from 6 to 18 inches over the site (see Available Soil Resources table in Section 232.100). Large stones, 36 inches or less, are considered part of the soil layer and are included in the topsoil volume estimates.

### **Substitute Topsoil**

The plan does not propose any borrow material as a source for substitute topsoil.

### **Findings:**

Information provided in the plan meets the soil resource information requirements of the regulations.

## **LAND-USE RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 783.22; R645-301-411.

### **Minimum Regulatory Requirements:**

Provide a statement of the condition; capability, and productivity of the land that will be affected by surface operations and facilities within the proposed permit area.

Provide a map and supporting narrative of the uses of the land existing at the time of the filing of the application. If the premining use of the land was changed within 5 years before the anticipated date of beginning the proposed operations, the historic use of the land shall also be described.

The narrative of land capability and productivity must include the capability of the land before any mining to support a variety of uses, giving consideration to soil and foundation characteristics, topography, vegetative cover, and the hydrology of the area proposed to be affected by surface operations or facilities.

Describe the productivity of the area proposed to be affected by surface operations and facilities before mining, expressed as average yield of food, fiber, forage, or wood products from such lands obtained under high levels of management. The productivity shall be determined by yield data or estimates for similar sites based on current data from the U.S. Department of Agriculture, State agricultural universities, or appropriate State natural resources or agricultural agencies.

The application must state whether the proposed permit area has been previously mined. If so, provide the following information, if available: the type of mining method used; the coal seams or other mineral strata mined; the extent of coal or other minerals removed; the approximate dates of past mining; and, the uses of the land preceding mining.

The application shall provide a description of the existing land uses and land-use classifications under local law, if any, of the proposed permit and adjacent areas.

### **Analysis:**

Premining land uses of the proposed addition to the permit area include grazing, wildlife habitat, coal mining, and limited recreation. Grazing allotment boundaries are shown on Plate 4-2, and wildlife habitat is shown on Plate 3-1. Production in the grazing allotments in terms of animal unit months is shown in Table 4-3. The land is zoned by Emery County for mining and grazing.

There has been some previous mining activity near Lila Canyon, but it is unknown how much coal was mined. The road on the bottom of Lila Canyon was built in the 1950's to provide access for coal exploration. In addition a sealed breakout is located in the left fork of Lila Canyon where the Sunnyside Seam is exposed. Coal was transported out through the Horse Canyon Mine. It is believed the breakout was opened during the 1970's or early 1980's, and it is within the current permit area.

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According to the plan, Lila Canyon is within an area identified by the BLM as the Range Valley Mountain Habitat Management Plan Area. A habitat management plan was adopted in 1991 to provide management for various wildlife and for access management.

The proposed addition to the permit area does not support a wide variety of land uses because of the limited access and remote location, rugged topography, limited soils, and lack of rainfall and surface water. Water rights are discussed in Chapter 7, and water uses include stock watering and various uses for coal mining.

Boundaries of the Turtle Canyon Wilderness Study Area and the areas identified in the 1999 BLM wilderness inventory as having wilderness characteristics, both discussed below, are shown on Plate 4-4. A small portion of the proposed permit area addition overlaps with the Turtle Canyon Wilderness Study Area. The plan contains a copy of the BLM's 1993 Environmental Assessment (EA) prepared for management of the Turtle Canyon Wilderness Study Area, and it states that underground mining would be acceptable in this area.

The BLM's 1999 Utah Wilderness Inventory identifies areas with wilderness characteristics in addition to the previously-identified wilderness study areas. Two of these areas overlap the proposed addition to the permit area including the proposed disturbed area and are identified as the Desolation Canyon Wilderness Inventory Unit and the Turtle Canyon Inventory Unit. The plan includes copies of two memoranda from the BLM (Appendix 4-2). In a memo dated April 15, 1999, John Leshy, Office of the Solicitor for the Department of Interior, to the Utah State Director of the BLM wrote, "While the planning process is being completed on lands found to have wilderness characteristics in the 1999 Wilderness Inventory, the management prescriptions of existing land management plans do not change." The BLM plan for this area has not changed to date.

Furthermore, the wilderness inventory areas are subject to valid existing rights, and the Lila Canyon proposal falls into that realm.

**Findings:**

Land use information provided in the plan meets the requirements of this section of the regulations.

## **ALLUVIAL VALLEY FLOORS**

Regulatory Reference: 30 CFR Sec. 785.19; R645-302-320.

Minimum Regulatory Requirements:

This section applies to surface coal mining and reclamation operations on areas or adjacent to areas including alluvial valley floors in the arid and semiarid areas west of the 100th meridian.

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### Alluvial valley floor determination

Permit applicants who propose to conduct surface coal mining and reclamation operations within a valley holding a stream or in a location where the permit area or adjacent area includes any stream, in the arid and semiarid regions of the United States, as an initial step in the permit process, may request the Division to make an alluvial valley floor determination with respect to that valley floor. The applicant shall demonstrate and the Division shall determine, based on either available data or field studies submitted by the applicant, or a combination of available data and field studies, the presence or absence of an alluvial valley floor. Studies shall include sufficiently detailed geologic, hydrologic, land use, soils, and vegetation data and analysis to demonstrate the probable existence of an alluvial valley floor in the area. The Division may require additional data collection and analysis or other supporting documents, maps, and illustrations in order to make the determination.

The Division shall make a written determination as to the extent of any alluvial valley floors within the area. The Division shall determine that an alluvial valley floor exists if it finds that unconsolidated streamlaid deposits holding streams are present; and there is sufficient water available to support agricultural activities as evidenced by the existence of current flood irrigation in the area in question; the capability of an area to be flood irrigated, based on evaluations of streamflow, water quality, soils, and topography; or, subirrigation of the lands in question derived from the ground-water system of the valley floor.

If the Division determines in writing that an alluvial valley does not exist pursuant to the requirements of this section, no further consideration of this section is required.

### Applicability of statutory exclusions

If an alluvial valley floor is identified and the proposed surface coal mining operation may affect this alluvial valley floor or waters that supply the alluvial valley floor, the applicant may request the Division, as a preliminary step in the permit application process, to separately determine the applicability of the statutory exclusions set forth in this section. The Division may make such a determination based on the available data, may require additional data collection and analysis in order to make the determination, or may require the applicant to submit a complete permit application and not make the determination until after the complete application is evaluated.

An applicant need not submit the information required and the Division is not required to make the findings required of this section when the Division determines that one of the following circumstances, heretofore called statutory exclusions, exist:

1. The premining land use is undeveloped rangeland that is not significant to farming;
2. Any farming on the alluvial valley floor that would be affected by the surface coal mining operation is of such small acreage as to be of negligible impact on the farm's agricultural production. Negligible impact of the proposed operation on farming will be based on the relative importance of the affected farmland areas of the alluvial valley floor area to the farm's total agricultural production over the life of the mine; or,
3. The circumstances set forth in Section 822.12(b)(3) or (4) of this Chapter exist.

For the purpose of this section, a farm is one or more land units on which farming is conducted. A farm is generally considered to be the combination of land units with acreage and boundaries in existence prior to August 3, 1977, or if established after August 3, 1977, with those boundaries based on enhancement of the farm's agricultural productivity and not related to surface coal operations.

(c) Summary denial. If the Division determines that the statutory exclusions are not applicable and that any of the required findings of Paragraph (e)(2) of this section cannot be made, the Division may, at the request of the applicant:

(1) Determine that mining is precluded on the proposed permit area and deny the permit without the applicant filing any additional information required by this section; or

(2) Prohibit surface coal mining and reclamation operations in all or parts of the area to be affected by mining.

(d) Application contents for operations affecting designated alluvial valley floors. (1) If land within the permit area or adjacent area is identified as an alluvial valley floor and the proposed surface coal mining operation may affect an alluvial valley floor or waters supplied to an alluvial valley floor, the applicant shall submit a complete application for the proposed surface coal mining and reclamation operations to be used by the Division together with other relevant information as a basis for approval or denial of the permit. If an exclusion of Paragraph (b)(2) of this section applies, then the applicant need not submit the information required in Paragraphs (d)(2)(ii) and (iii) of this section.

(2) The complete application shall include detailed surveys and baseline data required by the Division for a determination of--

(i) The essential hydrologic functions of the alluvial valley floor which might be affected by the mining and reclamation process. The information required by this subparagraph shall evaluate those factors which contribute to the collecting, storing, regulating and making the natural flow of water available for agricultural activities on the alluvial valley floor and shall include, but are not limited to: (A) Factors contributing to the function of collecting water, such as amount, rate and frequency of rainfall and runoff, surface roughness, slope and vegetative cover, infiltration, and evapotranspiration, relief, slope and density of drainage channels;

(B) Factors contributing to the function of storing water, such as permeability, infiltration, porosity, depth and direction of ground-water flow, and water holding capacity;

(C) Factors contributing to the function of regulating the flow of surface and ground water, such as the longitudinal profile and slope of the valley and channels, the sinuosity and cross-sections of the channels, interchange of water between streams and associated alluvial and bedrock aquifers, and rates and amount of water supplied by these aquifers; and

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(D) Factors contributing to water availability, such as the presence of flood plains and terraces suitable for agricultural activities.

(ii) Whether the operation will avoid during mining and reclamation the interruption, discontinuance, or preclusion of farming on the alluvial valley floor;

(iii) Whether the operation will cause material damage to the quantity or quality of surface or ground waters supplied to the alluvial valley floor;

(iv) Whether the reclamation plan is in compliance with requirements of the Act, this Chapter, and regulatory program; and

(v) Whether the proposed monitoring system will provide sufficient information to measure compliance with Part 822 of this Chapter during and after mining and reclamation operations.

(e) Findings. (1) The findings of Paragraphs (e)(2)(i) and (ii) of this section are not required with regard to alluvial valley floors to which are applicable any of the exclusions of Paragraph (b)(2) of this section.

(2) No permit or permit revision application for surface coal mining and reclamation operations on lands located west of the 100th meridian west longitude shall be approved by the Division unless the application demonstrates and the Division finds in writing, on the basis of information set forth in the application, that

(i) The proposed operations will not interrupt, discontinue, or preclude farming on an alluvial valley floor;

(ii) The proposed operations will not materially damage the quantity or quality of water in surface and underground-water systems that supply alluvial valley floors; and

(iii) The proposed operations will comply with Part 822 of this Chapter and the other applicable requirements of the Act and the regulatory program.

**Analysis:**

**Alluvial valley floor determination**

This section summarizes the land use, soil, plants, geology, surface- and ground-water information reviewed by the Division in making the findings required under R645-302-320.

The Lila Canyon Mine is situated in the western Book Cliffs escarpment. Steeply dipping joints transmit ground water from the surface (Section 6.5.3.5) as illustrated in Figure VI-5. Water inflow associated with fault or fracture systems are possible, but not expected to be significant (Section 6.6.1). The surface expressions of the faulting are grabens and draws. Numerous small springs and seeps exist within and adjacent to the permit area (Section 731.220). Appendix 7-3 Probable Hydrologic Consequences (PHC) of mining concludes that the proposed mine is not expected to cause "contamination, diminution or interruption" of underground or surface sources of water.

The Sunnyside Sandstone contains the two seams of interest: Upper Sunnyside and Lower Sunnyside seams. "The Sunnyside Sandstone is known to transmit groundwater in the Sunnyside area and that portion of the sandstone which underlies the Lower Sunnyside seam is occasionally considered to be a potential aquifer" (Section 6.4.1). Geneva Mine records indicate that the mine was dry until the Sunnyside Fault was intercepted. This suggests that as mining progresses down dip, "substantial" water may be encountered. It is thought that the water encountered is isolated from the surface recharge zone (Section 6.6.3.1).

The Mancos Shale forms the slopes below the base of the Book Cliffs, overlain in places by pediment deposits (Section 6.4.1 and Plate 6-1). In the permit area, ephemeral drainages flow in response to snow melt and precipitation events (Section 731.220 and Plate 7-1). Coleman Wash receives the Lila Canyon drainage. Grassy Wash and Marsh Flat Wash collect the flow from the Mancos slopes further south. Little Park Wash channels the flow on the plateau above. There is no valley holding a stream in the permit area (Section 724.700).

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The Order III soil survey (Plate 2-1), of the mine permit area soils indicates that the soils on the plateau in Little Park Wash are Neto Fine Sandy Loam (Section 222.200). No further information on this soil is available in the plan. This soil is comparable to the Glenberg soil described in the published Carbon County Soil Survey <sup>1</sup>.

Plate 3-2, Vegetation indicates that the dominant species growing on the plateau in the vicinity of Little Park Wash are *Atriplex*, *Artemesia* and *Elymus*, none of which are wetland species.

<sup>1</sup> Little Park Wash falls within the Little Park grazing allotment (Plate 4-2). The land use is unimproved rangeland and wildlife habitat.

There is no farming activity upstream or downstream of the permit area, therefore, the proposed operations will not interrupt, discontinue, or preclude farming on an alluvial valley floor.

Based on the information provided in the plan, in accordance with R645-302-321.100, the Division finds that there is no probable existence of an alluvial valley floor.

**Findings:**

Information provided in the plan is considered adequate to meet the requirements of this section of the regulations.

**PRIME FARMLAND**

Regulatory Reference: 30 CFR Sec. 785.16, 823; R645-301-221, -302-270.

Minimum Regulatory Requirements:

The U.S. Soil Conservation Service within each State shall establish specifications for prime farmland soil removal, storage, replacement, and reconstruction. The Division shall use the soil-reconstruction specifications to carry out its responsibilities under this section.

The requirements of this part shall not apply to:

**Note:** This section is suspended "insofar as it excludes from the requirements of Prime Farmlands those coal preparation plants, support facilities, and roads that are surface mining activities".

- (1) Coal preparation plants, support facilities, and roads of surface and underground mines that are actively used over extended periods of time and where such uses affect a minimal amount of land.
- (2) Disposal areas containing coal mine waste resulting from underground mines that is not technologically and economically feasible to store in underground mines or on non-prime farmland. The operator shall minimize the area of prime farmland used for such purposes.
- (3) Prime farmland that has been excluded in accordance with any valid existing rights as indicated below.

This section applies to any person who conducts or intends to conduct surface coal mining and reclamation operations on prime farmland historically used for cropland. This section does not apply to:

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<sup>1</sup> Telephone conversation on 06/05/01 with Mr. Leland Sasser, Soil Scientist and Survey Project Leader with Natural Resource Conservation Service, Price Field Office, Utah.

<sup>1</sup> Cooper, David J. 1989. A Handbook of Wetland Plants of the Rocky Mountain Region. EPA Region VIII.



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- (1) Lands on which surface coal mining and reclamation operations are conducted pursuant to any permit issued prior to August 3, 1977; or
- (2) Lands on which surface coal mining and reclamation operations are conducted pursuant to any renewal or revision of a permit issued prior to August 3, 1977; or
- (3) Lands included in any existing surface coal mining operations for which a permit was issued for all or any part thereof prior to August 3, 1977, provided that: such lands are part of a single continuous surface coal mining operation begun under a permit issued before August 3, 1977; and the permittee had a legal right to mine the lands prior to August 3, 1977, through ownership, contract, or lease but not including an option to buy, lease, or contract; and the lands contain part of a continuous recoverable coal seam that was being mined in a single continuous mining pit (or multiple pits if the lands are proven to be part of a single continuous surface coal mining operation) begun under a permit issued prior to August 3, 1977.

For purposes of this section, renewal of a permit means a decision by the Division to extend the time by which the permittee may complete mining within the boundaries of the original permit, and revision of the permit means a decision by the Division to allow changes in the method of mining operations within the original permit area, or the decision of the Division to allow incidental boundary changes to the original permit. A pit shall be deemed to be a single continuous mining pit even if portions of the pit are crossed by a road, pipeline, railroad, or powerline or similar crossing. A single continuous surface coal mining operation is presumed to consist only of a single continuous mining pit under a permit issued prior to August 3, 1977, but may include non-contiguous parcels if the operator can prove by clear and convincing evidence that, prior to August 3, 1977, the non-contiguous parcels were part of a single permitted operation. For the purposes of this paragraph, clear and convincing evidence includes, but is not limited to, contracts, leases, deeds or other properly executed legal documents (not including options) that specifically treat physically separate parcels as one surface coal mining operation.

All permit applications, whether or not prime farmland is present, shall include the results of a reconnaissance inspection of the proposed permit area to indicate whether prime farmland exists. The Division in consultation with the U.S. Soil Conservation Service shall determine the nature and extent of the required reconnaissance inspection.

If the reconnaissance inspection establishes that no land within the proposed permit area is prime farmland historically used for cropland, the applicant shall submit a statement that no prime farmland is present. The statement shall identify the basis upon which such a conclusion was reached.

If the reconnaissance inspection indicates that land within the proposed permit area may be prime farmland historically used for croplands, the applicant shall determine if a soil survey exists for those lands and whether soil mapping units in the permit area have been designated as prime farmland. If no soil survey exists, the applicant shall have a soil survey made of the lands within the permit area which the reconnaissance inspection indicates could be prime farmland. Soil surveys of the detail used by the U.S. Soil Conservation Service for operational conservation planning shall be used to identify and locate prime farmland soils.

If the soil survey indicates that no prime farmland soils are present within the proposed permit area, the plan shall include the results of a reconnaissance inspection of the proposed permit area to indicate whether prime farmland exists.

### Analysis:

A reconnaissance investigation was performed by the NRCS on June 8, 1998. There is no developed irrigation system and the soils are arid. The NRCS determined that no Prime Farmland nor farmland of statewide importance exists within the permit area. The prime farmland determination letter is included in Appendix 2-1. The Division concurs with this determination.

### Findings:

The Division has determined that there is no Prime Farmland in the permit area.

## GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

### Minimum Regulatory Requirements:

Each application shall include geologic information in sufficient detail to assist in: determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including

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the extent to which surface- and ground-water monitoring is necessary; determining all potentially acid- or toxic-forming strata down to and including the stratum immediately below the coal seam to be mined; determining whether reclamation can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area; and, preparing the subsidence control plan.

Geologic information shall include, at a minimum, a description of the geology of the proposed permit and adjacent areas down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. This description shall include the areal and structural geology of the permit and adjacent areas, and other parameters which influence the required reclamation and it shall also show how the areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water. It shall be based on maps and plans required as resource information for the plan, detailed site specific information as required below, and, geologic literature and practices.

For any portion of a permit area in which the strata down to the coal seam to be mined will be removed or are already exposed, samples shall be collected and analyzed from test borings; drill cores; or fresh, unweathered, uncontaminated samples from rock outcrops down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. The analyses shall result in the following:

- (1) Logs showing the lithologic characteristics including physical properties and thickness of each stratum and location of ground water where occurring;
- (2) Chemical analyses identifying those strata that may contain acid- or toxic-forming, or alkalinity-producing materials and to determine their content, except that the Division may find that the analysis for alkalinity-producing material is unnecessary; and
- (3) Chemical analysis of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur, except that the Division may find that the analysis of pyritic sulfur content is unnecessary.

For lands within the permit and adjacent areas where the strata above the coal seam to be mined will not be removed, samples shall be collected and analyzed from test borings or drill cores to provide the following data:

- (1) Logs of drill holes showing the lithologic characteristics, including physical properties and thickness of each stratum that may be impacted, and location of ground water where occurring;
- (2) Chemical analyses for acid- or toxic-forming or alkalinity-producing materials and their content in the strata immediately above and below the coal seam to be mined;
- (3) Chemical analyses of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur, except that the Division may find that the analysis of pyrite sulfur content is unnecessary; and
- (4) For standard room-and-pillar mining operations, the thickness and engineering properties of clays or soft rock such as clay shale, if any, in the stratum immediately above and below each coal seam to be mined.

If determined to be necessary to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards, the Division may require the collection, analysis, and description of additional geologic information.

An applicant may request the Division to waive in whole or in part the requirements of the borehole information or analysis required of this section. The waiver may be granted only if the Division finds in writing that the collection and analysis of such data are unnecessary because other information having equal value or effect is available to the Division in a satisfactory form.

### Analysis:

Geologic information includes a description of the geology of the proposed permit and adjacent areas down to and including the stratum immediately below the lowest coal seam to be mined. The coal seams and adjacent strata comprise an aquifer that may be intercepted by mining, and the geology influences the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water. The plan includes geologic information in sufficient detail to assist in determining the PHC of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface- and ground-water monitoring is necessary, and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

Resource maps and plans and site specific information are based on published geologic information, permit plans of the adjacent Sunnyside and South Lease areas, and exploration and drilling records of Kaiser Steel, U. S. Steel Corporation, and IPA. Copies of some drill logs are

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included in Appendix 6-1 of the Lila Canyon Significant Revision and others logs are available, but some of the original documentation is not readily available.

Strata above the coal seam to be mined will not be removed, so samples have been collected and analyzed from test borings or drill cores. Bore holes S-1 through S-23 were drilled between 1948 and 1975. S-24 through S-31 were drilled in 1980 and 1981.

An unsuccessful attempt was made to convert S-26, S-28, and S-31 to ground-water observation wells. S-26 and S-31, located south of the Williams Draw Fault, were offset with shallow piezometers A-26 and A-31 to observe ground water in the alluvium (Table 6-3). Table 6-3 does not indicate that these wells have been plugged and abandoned; however, the Permittee has no data on A-26 and A-31 (Section 6.5.1, p. 21) and considers these wells unusable for ground-water monitoring (Section 724.100).

S-32 was drilled in 1981 in SE1/4SW1/4 Sec. 6, T. 17 S., R. 15 E and completed as a piezometer in the Grassy Member of the Blackhawk Formation. The Permittee states that other than the log (copy in Appendix 6-1) there are no other geologic or piezometric data from S-32 (Section 6.5.1).

The Horse Canyon Well and the Minerals Development Corporation (MDC) well shown on Plate 7-1 were bored in Horse Canyon to monitor water in the alluvium (Section 6.5.1). There are no logs or other geologic or hydrologic data from these wells in the Lila Canyon Significant Revision (Section 724.100).

In 1993 and 1994 IPA-1, IPA-2, and IPA-3 were drilled. Results of proximate and ash analyses of floor and roof material from IPA-1, IPA-2 (roof only), and IPA-3 are in Appendix 6-2. There are also proximate, ultimate, sulfur (total and pyritic), ash, and several other analyses for "middle" coal samples from the three bore holes. Projected maximum height of mining is 8.5 feet according to the Resource Recovery and Protection Plan (R2P2): Plate 6-3 shows the minimum coal thickness is 11 feet, so coal will be left in both the roof and probably also in the floor.

Copies of bore-hole logs for IPA-1, IPA-2, IPA-3, S-14, S-27, and S-32 are in Appendix 6-1. Ground water was noted on the logs for IPA -1 and IPA-2: fluid levels were reported for S-27 and S-32 but the fluid may have been static drilling fluid in the bore hole rather than ground water. These logs show lithologic characteristics, including physical properties and thickness of each stratum that may be impacted. In addition to the bore holes, coal seams and adjacent strata were measured at seventeen outcrop locations in 1974 and 1975. Lithology and thickness of the coal seams and adjacent strata, based on the bore holes and measured out-crop sections, are shown on Plate 6-5.

Engineering properties of the strata immediately above and below the coal seam to be mined are listed in Table 6-6. Data are based on core samples from bore holes S-18 and S-22.

Access to the underground workings of the Lila Canyon Mine will be provided by two rock slopes driven upwards from the base of the cliff to the coal seam. Rock that will be removed from the tunnels will be called "slope-rock", and it fits most closely into the classification of underground

development waste. The slope-rock underground development waste will contain mostly shale, sandstone, and mudstone. Traces of coal may be found, but the Permittee believes the amount will be insignificant.

Slope-rock will be used to fill in areas to be used as pads in the coal pile storage areas, with any additional being placed in the refuse pile: sandstone materials may be crushed and used for gravel (Section 528.320), although the use for the gravel is not described.

The Permittee states that with over 100 years of mining in the Sunnyside Mining Operation, there have been no proven problems with acid- or toxic-forming materials (Section 6.5.5.1). The Division is aware of an instance where acid water formed at the Sunnyside slurry pond, but it did not cause problems or offsite impacts.

To ensure surface and ground waters will not be polluted by acid or toxic materials, the slope-rock material (underground development waste) will be examined and tested as necessary to determine acid- and toxic-forming potential (Section 536 of the plan). In Appendix 5-7, the Permittee commits to take a sample of coal processing waste for every 10,000 tons of waste disposed of in the refuse pile. These samples will be analyzed according to the parameters listed in Table 2 of Appendix 5-7. The Division requires that the slope-rock material be disposed of in a refuse pile. At a minimum, the material in the refuse pile must be covered with 4 feet of non-acid and non-toxic forming material. (See Chapters 2, 5, and 7, and Appendix 5-7 for details.)

The reclamation plan specifies 4 feet of subsoil and topsoil will be placed over the refuse pile. The slope-rock underground development waste used to build the pads will be left in place for final reclamation and buried with 4 feet of subsoil and topsoil (Chapters 2, 5, and 7, and Appendix 5-7).

Coal processing waste from the crusher will be placed in disposal areas within the permit area. The refuse pile has been designed as a location for the storage of underground development waste that is brought to the surface, including any excess slope-rock not used as fill; it is not anticipated by the Permittee that any underground waste other than the slope-rock will be brought to the surface. The capacity of the pile is designed for 150,000 tons, which is in excess of projected needs. Material not transported to the surface, such as overcast material, rock falls, and slope material may be disposed of underground according to the appropriate MSHA regulations. Because this will be an underground mine there will be no spoil.

The coal seam crops out at an elevation of approximately 6,500 feet in the vicinity of the rock-slope tunnels. The plan indicates the tunnels will intercept the coal seam at approximately 6,300 feet (Appendix 8-2 - Figure 7-1).

Underground mining always has a potential for impacting surface water, ground water, and other surface resources. The Permittee states in Section 721 that subsidence effects are expected to be minimal due to the amount of cover and massive rock strata between the mining and the surface. Coal-seam elevations determined from bore holes are on Plate 6-4 - Cover and Structure Map. Geologic information is sufficient to assist in preparing the subsidence control plan.

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The Permittee has made no request to the Division to waive in whole or in part the requirements of the borehole information or analysis required of this section.

### Findings:

Geologic Resource Information is considered adequate to meet the requirements of this section.

## HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

### Minimum Regulatory Requirements:

#### Sampling and Analysis.

All water-quality analyses performed to meet the requirements of this section shall be conducted according to the methodology in the 15th edition of "Standard Methods for the Examination of Water and Wastewater," which is incorporated by reference, or the methodology in 40 CFR Parts 136 and 434. Water-quality sampling shall be conducted according to either methodology listed above when feasible. This incorporation by reference was approved by the Director of the Federal Register on October 26, 1983. This document is incorporated as it exists on the date of the approval, and a notice of any change in it will be published in the Federal Register.

#### Baseline information.

The application shall include the following baseline hydrologic information, and any additional information required by the Division.

- (1) Ground-water information. The location and ownership for the permit and adjacent areas of existing wells, springs, and other ground-water resources, seasonal quality and quantity of ground water, and usage. Water-quality descriptions shall include, at a minimum, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese. Ground-water quantity descriptions shall include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam.
- (2) Surface-water information. The name, location, ownership, and description of all surface-water bodies such as streams, lakes, and impoundments, the location of any discharge into any surface-water body in the proposed permit and adjacent areas, and information on surface-water quality and quantity sufficient to demonstrate seasonal variation and water usage. Water-quality descriptions shall include, at a minimum, baseline information on total suspended solids, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese. Baseline acidity and alkalinity information shall be provided if there is a potential for acid drainage from the proposed mining operation. Water-quantity descriptions shall include, at a minimum, baseline information on seasonal flow rates.
- (3) Supplemental information. If the determination of the probable hydrologic consequences (PHC) indicates that adverse impacts on or off the proposed permit area may occur to the hydrologic balance, or that acid-forming or toxic-forming material is present that may result in the contamination of ground-water or surface-water supplies, then supplemental information shall be provided to evaluate such probable hydrologic consequences and to plan remedial and reclamation activities. Such supplemental information may be based upon drilling, aquifer tests, hydrogeologic analysis of the water-bearing strata, flood flows, or analysis of other water-quality or quantity characteristics.

#### Baseline cumulative impact area information.

- (1) Hydrologic and geologic information for the cumulative impact area necessary to assess the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining on surface- and ground-water systems shall be provided if available from appropriate Federal or State agencies.
- (2) If this information is not available from such agencies, then the applicant may gather and submit this information as part of the permit application.
- (3) The permit shall not be approved until the necessary hydrologic and geologic information is available.

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### Modeling.

The use of modeling techniques, interpolation, or statistical techniques may be included as part of the permit application, but actual surface- and ground-water information may be required for each site even when such techniques are used.

### Probable hydrologic consequences determination.

- 1.) The application shall contain a determination of the probable hydrologic consequences (PHC) of the proposed operation based upon the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.
- 2.) The PHC determination shall be based on baseline hydrologic, geologic, and other information collected for the permit application and may include data statistically representative of the site.
- 3.) The PHC determination shall include findings on: whether adverse impacts may occur to the hydrologic balance; whether acid-forming or toxic-forming materials are present that could result in the contamination of surface or ground-water supplies; what impact the proposed operation will have on: sediment yield from the disturbed area; acidity, total suspended and dissolved solids, and other important water quality parameters of local impact; flooding or streamflow alteration; ground-water and surface-water availability; and other characteristics as required.
- 4.) An application for a permit revision shall be reviewed by the Division to determine whether a new or updated PHC shall be required.

### Ground-water monitoring plan

- 1.) The application shall include a ground-water monitoring plan based upon the PHC determination and the analysis of all baseline hydrologic, geologic, and other information in the permit application. The plan shall provide for the monitoring of parameters that relate to the suitability of the ground water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance. It shall identify the quantity and quality parameters to be monitored, sampling frequency, and site locations. It shall describe how the data may be used to determine the impacts of the operation upon the hydrologic balance. At a minimum, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, total manganese, and water levels shall be monitored and data submitted to the Division at least every 3 months for each monitoring location. The Division may require additional monitoring.
- 2.) If an applicant can demonstrate by the use of the PHC determination and other available information that a particular water-bearing stratum in the proposed permit and adjacent areas is not one which serves as an aquifer which significantly ensures the hydrologic balance within the cumulative impact area, then monitoring of that stratum may be waived by the Division.

### Surface-water monitoring plan.

- 1.) The application shall include a surface-water monitoring plan based upon the PHC determination and the analysis of all baseline hydrologic, geologic, and other information in the permit application. The plan shall provide for the monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance, as well as the effluent limitations found at 40 CFR Part 434.
- 2.) The plan shall identify the surface-water quantity and quality parameters to be monitored, sampling frequency, and site locations. It shall describe how the data may be used to determine the impacts of the operation upon the hydrologic balance. At all monitoring locations in streams, lakes, and impoundments that are potentially impacted or into which water will be discharged and at upstream monitoring locations, the total dissolved solids or specific conductance corrected to 25°C, total suspended solids, pH, total iron, total manganese, and flow shall be monitored. For point-source discharges, monitoring shall be conducted in accordance with 40 CFR Parts 122, 123, and 434 and as required by the National Pollutant Discharge Elimination System permitting authority.
- 3.) The monitoring reports shall be submitted to the Division every 3 months. The Division may require additional monitoring.

## Analysis:

### Sampling and analysis

Baseline samples collected in 1993, 1994, and 1995 (Appendix 7-6) were analyzed using the methods in Standard Methods or 40 CFR 136. The Permittee commits that all water-quality analyses performed to meet the requirements of R645-301-723 through -724.300, -724.500, -725 through -731, and -731.210 through -731.223 will be conducted according to the methodology in the current edition of "Standard Methods for the Examination of Water and Wastewater" or the methodology

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in 40 CFR Parts 136 and 434. Water-quality sampling will be conducted according to either methodology listed above when feasible (Section 723).

### **Baseline Information**

The proposed Lila Canyon Mine will be an underground mine with a facilities pad approximately 49 acres in area. Only 28 acres will actually be disturbed for mine site facilities and roads. The other 21 acres may eventually be used during the mining interim. Any changes will require an amendment to the mine plan. Runoff from the disturbed minesite will be controlled by a system of ditches and culverts and sediment structures which will convey and capture runoff and sediment to a sediment pond for treatment prior to any discharge.

A water monitoring plan was developed to assess the ground- and surface water levels and flows. Intermittent and ephemeral drainages in the area flow in response to rapid snow melt and excessive precipitation events. The proposed surface-water monitoring program will monitor the surface-water and ground-water resources, including drainages above and below the disturbed mine site area, and all point-source discharges (i.e. sediment pond). The monitoring plan will provide data to show impacts to potentially-affected springs, seeps, impoundments and drainages within and adjacent to the permit area, by comparison with relevant baseline data and with applicable effluent limitations.

Within and adjacent to the permit area, the surface-water resources consist of three main drainages<sup>2</sup>: Horse Canyon Creek, Little Park Wash and an unnamed wash in Lila Canyon, all intermittent channels. Horse Canyon flows to Icelander Wash which, in turn, flows to Grassy Trail Creek and the Price River. Little Park Wash flows southward to Trail Canyon and the Price River. Lila Canyon drains southwest to Grassy Wash, then south to the Marsh Flat Wash and the Price River. (See Plate 7-1)

Generally, the upper sections of Horse Canyon; Little Park Wash and Lila Canyon flows during the spring snowmelt runoff period and also as a result of summer thunderstorms. Due to the limited drainage area and elevation of Lila Canyon, the duration of the snowmelt flows is quite short and is limited to early spring. Locations of all baseline data points are shown on Plate 7-1. Baseline data information is included in Appendix 7-1. There are no perennial streams, lakes, ponds or irrigation ditches known to exist within the Lila Canyon permit area. Usually no flow is evident in Horse Canyon Creek by late spring or early summer, or at Lila Canyon and Park Wash.

### **Ground-water Information**

There are baseline data collected at various dates for many springs in the area, and baseline data were obtained by IPA in 1993, 1994, 1995, and 1996 for the wells and springs that are also proposed for operational ground-water monitoring. Additional data were requested because there

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<sup>2</sup> Many of the streams on the proposed permit area are defined hydrologically as ephemeral, however the Coal Regulations consider any water shed over a square mile as intermittent.

was a hiatus in monitoring after 1996. Monitoring resumed in July 2000 and data are included through May 2001.

Based on the Division's review of all available data, the hydrologic characteristics of the permit and adjacent areas have been determined and existing baseline data are considered sufficient to approve the permit.

### *Seeps and springs*

There is a paucity of springs and seeps within the permit area. Most springs and seeps appear above the escarpment. Only Redden Spring (RS-1) and another spring (RS-2) flow in Horse Canyon. RS-2 discharges approximately 10 gpm from a sandstone unit above the coal seams. Williams Draw (L-10-G) south of the permit area exhibits the highest amount of flow. In an average water year the flow is perennial and a spring has been developed supplying a watering trough for cattle and wildlife. Springs and potential mine water discharge will be monitored in accordance with the Ground Water Monitoring Plan in Chapter 7 throughout the operation and reclamation phases.

Locations of all confirmed seeps and springs are shown on Plate 7-1 (Section 722.200). There were several springs located in earlier surveys but their locations could not be confirmed. Names or numbers used to identify springs and seeps are sometimes different in Appendices 7-1, 7-2, and 7-6 and on the maps. The various names, dates, and types of data were tabulated and are shown in Table 1 of this Technical Analysis.

JBR Consultants Group conducted a seep and spring survey of the Horse Canyon area in 1985. Table 7-1 in the plan contains flow, pH, conductivity, and temperature data for nineteen seeps and springs: H-1 through H-11, H-13, H-14, H-18 through H-22, and H-92. Laboratory report sheets for H-1 (RB-21), H-6 (RB-26), H-18 (EWL-25), and H-21 (EWL-26) for November 1985 are in Appendix 7-6.

Appendices 7-1 and 7-6 contain seasonal information on ground-water quality and flow for seeps and springs 1 (S-1), 9 (S-9), 10 (S-10), 14 (S-14), 16 (S-16, 16Z), HC-2 (H-2), HC-4 (H-4), HC-9 (H-9), HC-11 (H-11), HC-13 (H-13), HC-14 (H-14), and HC-18 (H-18). Data are from work done in 1993, 1994, and 1995 by EarthFax Engineering for IPA. Water-quality parameters required by the Utah Coal Mining Rules, which are total dissolved solids (TDS) or specific conductance corrected to 25 degrees C°, pH, total iron, and total manganese were determined. Other parameters listed in Division of Oil, Gas and Mining (DOGM) Directive Tech 004 were analyzed in these samples, except that total metals rather than dissolved metals concentrations were determined.

EarthFax also identified springs and seeps 1A, 1B, 2, 3, 3A, 3B, 3C, 3D, 4, 5, 6, 7, 8, 8A, 8B, 9R, 10A, 11, 12, 12A, 12B, 12C, 12D, 12E, 13, 13A, 13B, 13Z, 14A, 15, 15A, 15B, 15C, 16A, 16B, 16C, 17, 17A, 17B, 18, 19A, 19B, 19C, 20, and 22. These were dry or had low flows at the time of the quarterly visits and no water-quality analyses were done (Appendix 7-1). 8B, 15A, 17B, and 19C could neither be found on Plate 7-1 nor matched with another identified seep or spring.

RS-1 and RS-2 were sampled once a year during 1978, 1979, and 1980 and analyzed for most major chemical constituents. Data are in Appendix VI-1 of the current Horse Canyon Mine MRP.



Water rights are listed in Table 7-2. Uses are stockwatering, domestic, mining, and "other". The list includes Redden Spring plus springs identified as Mont, Leslie, Cottonwood, Williams, and Kenna. There are two Pine Springs listed, at different locations and with separate water rights. In addition there are eleven unnamed or otherwise unidentified springs listed, plus three rights on "underground tunnels". Locations of water rights are on Plate 7-3, and some of the locations on Plate 7-3 correspond roughly with springs shown on Plate 7-1. A water right for the MDC well is listed in Table 7-2, but information in Sections 6.5.1 and 722.400 of the plan indicates this was a water monitoring well that has been abandoned and, to the best of the Permittee's knowledge, plugged.

A water-monitoring program was implemented in July 2000 to determine if the springs proposed for operational monitoring were still viable and to establish a current baseline that would be continuous with operational monitoring (page 30, Chapter 7): L-6-G (H-18), L-7-G (9, S-9), L-8-G (10, S10), L-9-G (16, 16Z, S-16), and L-10-G (14, S14) were prescribed to be monitored. Dry conditions in July led to "no flows" being reported for all sites. And, snow conditions did not allow the operator to gain access to the sites in November 2000 and February 2001, Appendix 7-1 of the proposed amendment. Monitoring of springs continues.

#### *Wells and boreholes*

Two wells (Plate 7-1) were bored in Horse Canyon to monitor water in the alluvium (Section 6.5.1). The Horse Canyon Well near the main Horse Canyon facilities will be used during mining and reclamation operations and sealed after reclamation is complete. To the Permittee's best knowledge, the MDC well (Table 7-2) located near the road junction has already been sealed. There are no logs or other geologic or hydrologic data for these wells.(Section 724.100).

In 1993 and 1994, IPA-1, IPA-2, and IPA-3 (Plate 7-1) were drilled as piezometers. Water levels were measured seasonally by IPA in 1994, 1995, and 1996 to provide baseline data (Appendix 7-1) for the proposed permit area. Wells this deep are very difficult to sample water quality and are intended to measure water levels. Water quality has not been determined for these wells. A water-monitoring program was implemented in December 2000 to determine if the wells and springs proposed for operational monitoring were still viable and to establish a current baseline that would be continuous with operational monitoring (page 30, Chapter 7). In December 2000, UEI was able to measure the water level in IPA-2. The plan indicates that at IPA-1 and IPA-3 the probe was not able to go far enough into the wells to reach water. These wells were successfully measured on May 15, 2001. The water levels taken on May 15, 2001 at IPA-2 and IPA-3 were within the range of depths measured in 1994 through 1996. The water level at IPA-1 was roughly 14 feet lower than the last measurement in 1996; however, water levels in IPA-1 were decreasing during the 1996 to 1998 monitoring period. The reason for this decline is unknown. This could potentially be related to water inflow to the old Horse Canyon Mine workings. IPA-1 and the old Horse Canyon Mine are separated from IPA-2 and IPA-3 by a fault.

Seeps, springs and potential mine water discharge will be monitored in accordance with the Ground Water Monitoring Plan in Chapter 7.

**Table 1. Names, dates, and data types of water monitoring.  
GROUND-WATER MONITORING SITES**

**F = Field parameters only, R = Required parameters only, L = Lab parameters - operational or baseline,  
Flow = Flow only, D = Dry or no-flow, W = Reported as 'wet', S = Reported as 'seep'**

Name		Appendix 7-2				Appendices 7-1 and 7-6									App 7-2	Water Right
Utah American Energy	JBR - EarthFax	1978 - 1980 (Geneva)	1981 - 1983 (Geneva)	1985 (JBR)	1989 (Kaiser)	1993 (EarthFax)		1994 (EarthFax)			1995 (EarthFax)			1997 Annual Report		(Spring Name)
				Nov		May	Oct	May	Aug	Oct	May	Aug	Oct	quarterly		
	JBR															
	HC-1A															
	II-1 (RB-21)			F, L							F					
	H(C)-2			F				F, L	F, L	F, L	F, L	F, L	F, L			
	H-3			F												
	H(C)-4			F					F, L	F, L	F, L	F, L	F, L			
	H-5			F												
	H-6 (RB-26)			F, L												
	H-7			F												
	H-8			F												
	H(C)-9			F				F, L	D	D						
	H-10			F												91-1903
	H(C)-11			F				F, L	F, L	F, L	F, L	F, L	F, L			
	H(C)-13			F				F, L	F, L	F, L	F, L	F, L	F, L			
	H(C)-14			F				L			F, L	F, L	F, L			
L-6-G	H(C)-18 (EWL-25)			F, L				F, L	W	S	F, L	F, L	F, L			91-618 (Mont 91-617 (Leslie)
	H-18A															
	H-18B															
	H-19			F												
	H-20			F												
	H-21 (EWL-26)			F, L												
	H-21A															
	H-21B															
	H-22			F												
	H-92			S												
	EarthFax															
	I (S-1)					F, L	F, L	F, L	F, L	D	F, L	F, L	F, L			

**Table 1. Names, dates, and data types of water monitoring.  
GROUND-WATER MONITORING SITES**

**F = Field parameters only, R = Required parameters only, L = Lab parameters - operational or baseline,  
Flow = Flow only, D = Dry or no-flow, W = Reported as 'wet', S = Reported as 'seep'**

Name		Appendix 7-2				Appendices 7-1 and 7-6									App 7-2	Water Right
Utah American Energy	JBR - EarthFax	1978 - 1980 (Geneva)	1981 - 1983 (Geneva)	1985 (JBR)	1989 (Kaiser)	1993 (EarthFax)		1994 (EarthFax)			1995 (EarthFax)			1997 Annual Report	(Spring Name)	
				Nov		May	Oct	May	Aug	Oct	May	Aug	Oct	quarterly		
	1A					F	D	F	S	S	F	D	D			
	1B					S	D	S	D	D		W	W			
	2								D	S	F	D	F			
	3					F	F	F	D	S	F	F	F			
	3A					F	F	F	D	D	F	D	D			
	3B					F	F	F	D	D	F	F	F			
	3C								D	S	S, F	F	F			
	3D								D	S	F	F	F			
	4					F	D	F	D	Flow	F		D			
	4A						F	F					D			
	5					F	D	F	D	S	F	S				
	5A						D									
	6					D	F	S	S	S		F	F			
	6A						D									
	7					F	F	F	S	Flow	S	F	F			
	7A						F									
	8					F	F	F	F	F	F	F	F			
	8A					F	F		D	Flow	F	F	F			
	8B						F		D							
L-7-G	9 (S-9)					F, L	F, L	F, L	F, L	F	F, L	F, L	F, L		91-399 91-2537 91-2521 (Cottonwood)	
	9R					F			D		F	F	F			
L-8-G	10 (S-10)					F, L	F, L	F, L	F, L	F	F, L	F, L	F, L		91-808 91-2538	
	10A											F	F			
	11					F	F	F	W		S, F	F	F			
	12									F	F	S	S			
	12A					F	F	F	F	F	F	F	F			
	12B					F	F	F	F	F	F	F	F			

**Table 1. Names, dates, and data types of water monitoring.  
GROUND-WATER MONITORING SITES**

**F = Field parameters only, R = Required parameters only, L = Lab parameters - operational or baseline,  
Flow = Flow only, D = Dry or no-flow, W = Reported as 'wet', S = Reported as 'seep'**

Name		Appendix 7-2				Appendices 7-1 and 7-6									App 7-2	Water Right
Utah American Energy	JBR - EarthFax	1978 - 1980 (Geneva)	1981 - 1983 (Geneva)	1985 (JBR)	1989 (Kaiser)	1993 (EarthFax)		1994 (EarthFax)			1995 (EarthFax)			1997 Annual Report		(Spring Name)
				Nov		May	Oct	May	Aug	Oct	May	Aug	Oct	quarterly		
	12C					F	F	F	W	F	F	S	S			
	12D					F	F	S	D	F	S, F		D			
	12E								S	S	F	W	F			
	13					F	F	F	W, L	F	F	W	F			
	13A					F	D		D	D	D	D	F			
	13B					F	F	F	W	S	F	W	F			
	13Z					F	F	S	W	S	F	F				
L-10-G	14 (S-14)					F, L	F, L	F, L	F, L	F	F, L	F, L	F, L			91-809 91-2535
	14A					F	D	D	D	S	D	W	W			
	15					F	D	D	D	D	W	D	D			
	15A					F	F	F	W	F	F	W	W			
	15B					F	S	D	D	S	D	D	D			
	15C					S	S	S	D	D	D	W	D			
L-9-G	16(Z) (S-16)					S, L	F, L	F	F		F, L	F, L	F, L			91-2539 (Pine)
	16A					F	F	F, L	D	D		D	D			
	16B					F	D	D	D	D		D	F			
	16C					S	D	D	D	D	F	D	S			
	17					F	F	F	W	F	F	S	S			
	17A					F	D	S	D		W	S				
	17B (abandoned 10/26/94)					F			D							
	18					F	D	F	W	F	F	F	S			
	18A						F									
	19															
	19A					F	F	F	D	S	F	S	W			
	19B					F	F	F	D	F	F		F			
	19C						F	F	D							
	20					F	D	S	S	F	S	W	D			
	21															

**Table 1. Names, dates, and data types of water monitoring.  
GROUND-WATER MONITORING SITES**

**F = Field parameters only, R = Required parameters only, L = Lab parameters - operational or baseline,  
Flow = Flow only, D = Dry or no-flow, W = Reported as 'wet', S = Reported as 'seep'**

Name		Appendix 7-2				Appendices 7-1 and 7-6									App 7-2	Water Right
Utah American Energy	JBR - EarthFax	1978 - 1980 (Geneva)	1981 - 1983 (Geneva)	1985 (JBR)	1989 (Kaiser)	1993 (EarthFax)		1994 (EarthFax)			1995 (EarthFax)			1997 Annual Report		(Spring Name)
				Nov		May	Oct	May	Aug	Oct	May	Aug	Oct	quarterly		
	22					D	F	F	W	D	W	D				
	RS-1															91-4959 (Redden)
	RS-2	L	R											F, L		91-4959 (Redden)
																91-810
																91-2517
																91-2518 (Williams)
																91-2519
																91-2520

SURFACE-WATER MONITORING SITES														
F = Field parameters only, R = Required parameters only, L = Lab parameters - operational or baseline, Flow = Flow only, D = Dry or no-flow, W = Reported as 'wet', S = Reported as 'seep'														
Name		Appendix 7-2				Appendices 7-1 and 7-6								App 7-2
Utah American Energy	JBR - EarthFax	1978 - 1980 (Geneva)	1981 - 1983 (Geneva)	1985 (JBR)	1989 (Kaiser)	1993 (EarthFax)		1994 (EarthFax)			1995 (EarthFax)			1997 Annual Report
				Nov		May	Oct	May	Aug	Oct	May	Aug	Oct	quarterly
	HCSW-1 (HSW-1) (HC-1)		R		L			F, L	F, L	F, L	F, L			F, L
	HCSW-2							D	D	D	D			
	HCSW-3							D	D	D	D			
	HCSW-4													
	B-1 (HC-2)		R		D									D
	BE-1		R											R

WELLS						
Name	1994		1995		1996	2001
	July	Aug	May	Aug	April	May
IPA-1	Wtr Level	Wtr Level	Wtr Level	Wtr Level	Wtr Level	Wtr Level
IPA-2	Wtr Level	Wtr Level	Wtr Level	Wtr Level	Wtr Level	Wtr Level
IPA-3	Wtr Level	Wtr Level	Wtr Level	Wtr Level	Wtr Level	Wtr Level

### Surface-Water Information

The Permittee has collected surface- and ground-water information over and adjacent to the proposed mining area and prepared a scenario of the PHC (Appendix 7-3). The Division makes an assessment of the cumulative impacts of coal mining on water resources in the Cumulative Hydrologic Impact Assessment (CHIA).

Within and adjacent to the permit area, surface-water resources consist of three intermittent drainages: Horse Canyon Creek, Lila Canyon channel, and Little Park Wash (Section 724.200). These channels function as ephemeral, but are regarded as intermittent as identified under Section R645-100-200 of the coal regulations, because they have a drainage area greater than one square mile. The south fork of Coleman wash runs along the south side of the disturbed area and is considered ephemeral. The Permittee states in Section 722.200 that the location of all known seeps and springs, as well as watering ponds or tanks are shown on Plate 7-1. The Permittee states that there are no streams, lakes or ponds, or irrigation ditches known to exist within the proposed permit or adjacent areas (Section 722.200): there are no perennial streams, but intermittent and ephemeral streams are shown on Plate 7-1.

Range Creek drainage is the nearest perennial stream to the Horse Canyon Mine permit area. It is approximately 6 miles east of the Lila Canyon permit area and separated from it by the drainage divide at the top of the Roan Cliffs. Because of the distance from the proposed Horse Canyon Mine, the Division has not required collection of baseline hydrologic baseline data from Range Creek.

The upper reaches of Lila Canyon channel and Little Park Wash begin in the Bookcliffs escarpment about 1000 feet above the proposed surface facilities. Little Park Wash runs from northwest to southeast and forms the main drainage through the escarpment over the permit area. No runoff flow was observed in the channel 1998, 1999, and 2000, thus no water-quality data was collected for the main channel in Little Park Wash. A dirt road runs parallel to the channel on part of the permit so access to observe the channel is good.

There appear to be a few springs in each of the larger draws, which are tributary channels to Lila Canyon and Little Park Wash. The springs are associated with sandstone outcrops of the Colton Formation, and their source appears near the channel. Most of the flow emanates near the channel. Long use of the area for cattle is evident, because some of the higher flowing springs have been developed and have troughs placed near the channel to collect flows for watering.

Typically, the spring flow is not large. Some springs flow only a few tenths of a gallon per minute, some of the larger springs flow from 2 to 8 gallons per minute in the spring and 1 to 5 gallons per minute in mid-summer. The springs flow down the channel for a distance of 50 to 100 feet before they seep into the alluvium. Sometimes part of the flow reappears when the alluvium thins and bedrock forms the channel bottom. Channel flow occurs only when there are heavy rains from thunderstorms or rapid snowmelt.

Usually no flow is evident in Horse Canyon Creek by late spring to early summer below the mine site.

Flow monitored in the valley at B-1 (or HC-2) in 1989 was intermittent (Appendix 7-2).

Water-quality and quantity data for Horse Canyon surface-water monitoring points HCSW-1 (HSW-1, HC-1), HCSW-2, HCSW-3, B-1 (HC-2), and RF-1 are identified in Appendices 7-1, 7-2, and 7-6. Data in Appendices 7-1 and 7-6 show HCSW-2 and HCSW-3 were dry when monitored in 1994 and 1995. Baseline data from 1981 through 1983 for the Horse Canyon Mine's Utah Pollutant Discharge Elimination System (UPDES) discharge points 001, 002, and 003 are in Appendix 7-2.

Discharge from the mine to Horse Canyon Creek at sites 001 and 002 appears to have been constant from May 1981 to June 1983, although flows were typically small. Flow volume at discharge point 003 below the mine was not reported, although water samples were collected throughout the 3-year period. Any surface-water data from this period, or earlier, would mainly be mine-discharge water rather than surface runoff. There was no reported flow from site 003 from 1983 until reporting ceased in 1991.

Plate 7-4 shows surface-water monitoring sites for the Lila Canyon Mine. Because the drainages are ephemeral in nature and usually dry, there are no historic baseline data, not even reports stating no-flow, for L-1-S, L-2-S, and L-3-S in Lila Canyon, nor for surface water anywhere in the Lila Canyon drainage. A water-monitoring program was implemented in July 2000, and data are to be collected at L-1-S through L-4-S (Section 731.200) to establish a current baseline and assure the sites are viable. L-1-S, L-2-S, and L-3-S were monitored in July and November 2000 and February 2001.

Water rights are listed in Table 7-2. Locations of water rights are shown on Plate 7-3.

### **Baseline Cumulative Impact Area Information**

Hydrologic and geologic studies have been conducted in the past by federal agencies and consultants working for Kaiser Steel Corporation and IPA. The United States Geological Survey (USGS) conducted studies in the early 1980's for the BLM to obtain data and information for the Environmental Impact Statement (EIS) in accordance with NEPA.. Further studies were conducted by JBR Consultants when Kaiser Steel Corporation attempted to obtain a mine permit for the South Lease Area. EarthFax Engineering conducted hydrologic studies for IPA to assess the probable hydrologic impacts of the proposed operation. Additional information has been gathered by Environmental Industrial Services and submitted by the Permittee as part of the proposed mine permit amendment. Hydrologic and geologic studies and publications provide resources information referenced many times in Chapters 6 and 7. A CHIA is prepared by DOG from the information presented in the permit application as well as information supplied from professional hydrologic and geologic publications.

### **Modeling**

Actual surface- and ground-water information is supplied in this plan; therefore, modeling is not proposed. No surface-water modeling has been conducted.

### **Alternative Water Source Information**

A search was conducted of the State of Utah Water Rights files for all rights occurring within, and adjacent to the permit area, for a distance of one mile. The location of these water rights are shown on Plate 7-3 and a description of each of these rights is tabulated in Table 7-2.



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**ENVIRONMENTAL RESOURCE INFORMATION**

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As noted in the table in Section 727, the majority of water rights are owned by UEI, for industrial use. There are other water rights owned by the BLM or other entities that are primarily used for livestock watering.

UEI owns the rights to approximately 1.50 cfs in this area. The PHC (Appendix 7-3) indicates little, if any, adverse effects on water resources resulting from the operation. Lost water sources would be replaced from the water rights owned by the company if such effects should become evident.

**Probable Hydrologic Consequences (PHC) Determination**

The PHC determination is provided as a separate document in Appendix 7-3. This determination indicates negative impacts of the mining or reclamation operation on the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.

The Permittee identifies potential adverse impacts in Chapter 7 which consist of :

1. Increased sediment loading;
2. Diminution or interruption of water supplies on water rights;
3. Discharge of contaminated ground water;
4. Erosion and streamflow alteration;
5. Deterioration of water quality.

Each of the above potential impacts has been evaluated in the PHC.

With underground mining, there always exists a potential for impacting surface or ground-water resources; however, as indicated in Section 525, subsidence effects are expected to be minimal due to the amount of cover and massive rock strata between the mine and the surface. Effects on underground water are also expected to be minimal, since this water is not presently issuing to the surface, and any necessary discharges of the water would be in accordance with UPDES requirements.

The Permittee indicated that no mine water is expected to be discharged. If it becomes necessary to discharge mine water, the receiving channel will be characterized to ensure that any changes in channel morphology as a result of a discharge will be mitigated. Any potential impacts to receiving streams in the event mine water is discharged from the mine are addressed.

Appendix 7-3 contains the determination of the PHC of the proposed operation based upon the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas. The PHC determination is based on baseline hydrologic, geologic, and other information collected for the proposed amendment. The Permittee finds in the PHC determination that, based on available data and expected mining conditions, the proposed mining and reclamation activity is not expected to proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit or adjacent area used for domestic, agricultural, industrial or other legitimate purpose.

**ENVIRONMENTAL RESOURCE INFORMATION**

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The Permittee determined that within the Lila Canyon permit area, the general seasonal streamflow is ephemeral although by definition in the Utah Coal Rules the streams are considered intermittent. The streams generally dry up by late spring, with only occasional runoff during the summer as the result of rainfall events (Appendix 7-3).

The Permittee suggests that due to the close proximity and similarities of mining and drainage conditions, water quality and impacts to the channels from pumping, the Lila Canyon Mine would be very similar to those experienced in the adjacent Horse Canyon Mine. There are no pre-mining data for Horse Canyon, so the determination of impacts in Horse Canyon is based on water monitoring results and the absence of reports of negative impacts (Section 6.5.5.1). Channel morphology and characteristics will be determined before water is discharged from the mine to Lila Canyon, and impacts to Lila Canyon from mine water discharge can then be documented and, if necessary, reduced or eliminated (Section 728.333). Water discharged to Lila Canyon will be sampled and analyzed. If the natural quality of the discharge water does not meet UPDES standards, the water will be treated prior to discharge.

Because of the disturbed areas and the potential for large runoff events, the control of erosion is a prime factor in maintaining the hydrologic balance within the mine permit area. Sediment controls and a sedimentation pond will be constructed at the new mine site to minimize impacts. Surface water will be protected by use of sediment controls and all sediment from the disturbed area will be routed to and deposited in the sedimentation pond.

Although subsidence has the potential to alter the ground-water flow regime in the area, several factors tend to limit the effects of subsidence on the ground-water regime. Most of the local springs flow from perched systems in the North Horn Formation and are separated from the underlying regional aquifer. The North Horn Formation contains swelling clays that tend to heal small fractures. Finally, the perched aquifers are lenticular and discontinuous so there is a greater probability that fractures in one area will not drain the overlying aquifers.

Springs are used by wildlife and livestock and are mostly located upstream of the permit areas or are in areas where subsidence resulting from post-1977 mining has not been documented and is not expected. Current conditions of springs and seeps, as evidenced in baseline data, reflect any impacts of 50 years of prior mining at the Horse Canyon Mine, as well as pre-mining conditions for the Lila Canyon area.

The Permittee has determined that it is unlikely there will be any measurable impacts from the mining and reclamation activities from the Lila Canyon Mine. Pre-mining data are not available for the Horse Canyon Mine (Section 724.100), but depletion of ground-water flow and quality during operation of the Horse Canyon Mine is not indicated by monitoring results, such as those in Appendices 7-2 and 7-6, and the Permittee has found no reports of depletion due to subsidence in the Horse Canyon permit area. The great thickness of strata between the coal seam and springs above the Lila Canyon Mine should provide protection to the springs, so they should continue to flow, with fluctuations that are related to variations in recharge from precipitation rather than mining and subsidence.

The Permittee stated that after reclamation, it is unlikely that the ground-water level in the regional aquifer will ever rise to the level of any portal of either the Horse Canyon or Lila Canyon Mines, so there

## **ENVIRONMENTAL RESOURCE INFORMATION**

should be no natural discharge of ground water through any sealed portals. Standpipes are to be incorporated into the sealed portals of the Lila Canyon Mine so that water levels can be checked annually.

In the PHC the Permittee states that, based on available information, and expected mining conditions, the activities related to mining are not expected to cause contamination, diminution or interruption of any underground or surface water source within the proposed permit or adjacent areas. Acid-forming or toxic-forming materials and streamflow alteration are two subjects that will require further investigation as mine construction and operation proceed. During the operational phase the Permittee will sample and collect data on rock and coal refuse mined to determine if those materials will yield unexpected constituents that will require special treatment or mitigation. The Permittee also plans to assess the potential for mine water or sediment pond discharges to determine if mitigation procedures will be required.

The Division determines that the PHC has been assessed and described adequately by the Permittee. The PHC states that interception of spring flows on the escarpment should not take place. Studies and site evaluation will be conducted during the operational period to assess the potential for acid/toxic forming materials and potential for UPDES discharges.

### **Findings:**

The Permittee has addressed the minimum Hydrologic Resource Information requirements of the regulations.

## **MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

### **Minimum Regulatory Requirements:**

The permit application must include as part of the Resource Information, the following maps, plans and cross sections:

#### **Affected area boundary maps**

The boundaries of all areas proposed to be affected over the estimated total life of the underground mining activities, with a description of size, sequence, and timing of the mining of subareas for which it is anticipated that additional permits will be sought.

#### **Archeological site maps**

Known archeological sites within the permit or adjacent areas. Note - Information on the nature and location of archeological resources on public land and Indian land as required under the Archeological Resources Protection Act of 1979 must be submitted separately from the application, and marked and held as confidential.

#### **Coal resource and geologic information maps**

Nature, depth, and thickness of the coal seams to be mined, any coal or rider seams above the seam to be mined, each stratum of the overburden, and the stratum immediately below the lowest coal seam to be mined. All coal crop lines and the strike and dip of the coal to be mined within the proposed permit area.

#### **Cultural resource maps**

The boundaries of any public park and locations of any cultural and historical resources listed or eligible for listing in the National Register of Historic Places. Each cemetery that is located in or within 100 feet of the proposed permit area. Any land within the proposed permit area which is within the boundaries of any units of the National System of Trails or the Wild and Scenic Rivers System, including study rivers designated under Section 5(a) of the Wild and Scenic Rivers Act. Any other relevant information required by the Division.

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### Existing structures and facilities maps

Location and dimensions of existing areas of spoil, waste, coal development waste, and noncoal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within the proposed permit area.

### Existing surface configuration maps

Sufficient slope measurements to adequately represent the existing land surface configuration of the area affected by surface operations and facilities, measured and recorded according to the following: each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area to be disturbed or, where this is impractical, at locations specified by the Division; where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance determined by the Division to be representative of the premining configuration of the land; and, slope measurements shall take into account natural variations in slope, to provide accurate representation of the range of natural slopes and reflect geomorphic differences of the area to be disturbed.

### Mine workings maps

Location and extent of known workings of active, inactive, or abandoned underground mines, including mine openings to the surface within the proposed permit and adjacent areas. Location and extent of existing or previously surface-mined areas within the proposed permit area.

### Monitoring and sampling location maps

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, fish and wildlife, and air quality, if required, in preparation of the application.

### Permit area boundary maps

The boundaries of land within the proposed permit area upon which the applicant has the legal right to enter and begin underground mining activities.

### Subsurface-water resource maps

Location and extent of subsurface water, if encountered, within the proposed permit or adjacent areas, including, but not limited to, areal and vertical distribution of aquifers, and portrayal of seasonal differences of head in different aquifers on cross sections and contour maps.

### Surface and subsurface manmade features maps

The location of all buildings in and within 1,000 feet of the proposed permit area, with identification of the current use of the buildings. The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including, but not limited to, major electric transmission lines, pipelines, and agricultural drainage tile fields. Each public road located in or within 100 feet of the proposed permit area.

### Surface and subsurface ownership maps

All boundaries of lands and names of present owners of record of those lands, both surface and subsurface, included in or contiguous to the permit area.

### Surface-water resource maps

The locations of water-supply intakes for current users of surface waters flowing into, out of, and within a hydrologic area defined by the Division, and those surface waters which will receive discharges from affected areas in the proposed permit area. Location of surface-water bodies such as streams, lakes, ponds, springs, constructed or natural drains, and irrigation ditches within the proposed permit and adjacent areas.

### Vegetation reference area maps

The location and boundaries of any proposed reference areas for determining the success of revegetation.

### Well maps

Location, and depth if available, of gas and oil wells within the proposed permit area and water wells in the permit area and adjacent areas.

Cross sections, maps, and plans included in a permit application as required by this section shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional, land surveyor, with assistance from experts in related fields such as landscape architecture, and shall be updated periodically as required by the Division.

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**ENVIRONMENTAL RESOURCE INFORMATION**

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**Analysis:**

**Affected Area Boundary Maps**

Plate 5-4 and other maps show the permit boundaries that are the same as the affected area boundaries for the Horse Canyon Mine which includes the Horse Canyon project and the Lila Canyon project. Plate 5-5, Mine Map, shows the affected area boundaries for the Lila Canyon project and the timing and sequence of mining. These maps and plans were prepared and certified by a registered professional engineer in accordance with R645-301-512.

Contour maps of the proposed disturbed area and mining areas are included as Plates 5-2A, 5-2B, 7-1 and 7-2. These are USGS based contour maps and accurately represent the proposed permit and adjacent areas.

**Archeological Site and Cultural Resource Maps**

The locations of cultural and historic resources in the area are shown on Plate 4-3 and on maps in Appendix 4-1.

**Coal Resource and Geologic Information Maps**

For Lila Canyon, depth to the Sunnyside Seam, which is the seam to be mined, is shown on the Cover and Structure Map on Plate 6-4. Thickness of the Sunnyside Seam is shown on the Coal Thickness Isopach map on Plate 6-3. Thickness and nature of the Sunnyside Seam, of coal or rider seams above the Sunnyside Seam, and of the stratum immediately below the Sunnyside Seam are shown on the Coal Sections on Plate 6-5. The cross section on Figure 7-1 shows the rock tunnels, the dip of the strata, stratigraphy, and expected ground-water elevation.

Figures VI-1 and VI-2 portray the general stratigraphy of the permit and adjacent areas. Plate 6-1 shows surface geology, including coal crop lines, and the strike and dip of the Sunnyside Seam within the proposed permit area. Major faults are shown on Plates 6-1 through 6-5, and structural elevation contours on the Sunnyside Seam are on Plate 6-4. The Sunnyside fault, shown on Plates 6-1 and 6-2 of the Lila Canyon permit and Plate II-2 of the current MRP, limited mining to the east in the Horse Canyon Mine but is not expected to extend into the Lila Canyon Mine area, so is not expected to limit coal recovery at the Lila Canyon Mine.

Coal seam elevations determined from the outcrop and bore holes are on Plates 6-2, 6-3, and 6-4. The plates indicate that the coal seam crops out at approximately 6,500 feet in the vicinity of the rock-slope tunnels. The tunnels will intercept the coal seam at approximately 6,300 feet (Appendix 8-2 - Figure 7-1).

Depth of cover ranges from approximately 1,500 to 2,300 feet (Section 525.120), but minimum overburden thickness will be less than 500 feet in mine workings nearest the escarpment. The escarpments will be protected from subsidence by conducting first-mining only near the escarpments where overburden is 500 feet or less (Plate 5-5). Overburden is, for the most part, around 1,500 feet. Because of the flat topography of Little Park Wash, the deeper coal is generally to the east and north (Section 6.3.)

### **Existing Structures and Facilities Maps**

Plate 5-1A, Pre-Mining Contours, shows the existing structures in the proposed Lila Canyon disturbed area. The existing structures are a 36- inch culvert (scheduled to be replaced when the mine facilities area constructed) and the Emery County access road above the culvert. A description of the culvert is given in Sections 526.110 and 521.120 of the MRP and the road in Section 526.116.

### **Existing Surface Configuration Maps**

The MRP shows the existing surface contours on Plate 5-1A. The contours on Plate 5-1A extend more than 100 feet beyond the disturbed area boundaries. The contour intervals on Plate 5-1A are 25 feet.

### **Mine Workings Maps**

Plate 5-1 shows the mine workings in and adjacent to the permit area, including the Horse Canyon, the Old Book Cliffs mine and the Lila Canyon project. The DOGM Abandoned Mine Reclamation program inspected the area in and around the Lila Canyon site and found no evidence of underground workings not shown on Plate 5-1.

### **Monitoring Sampling Location Maps**

Elevations and locations of test borings are on Plates 6-2, 6-3, and 6-4, except that the location of S-32 is not known and therefore not shown on any map. It can be determined from the log in Appendix 6-1 that S-32 is in T. 17 S., R. 15 E. but the Section cannot be identified because of the poor quality of the copy. Elevations of core samples are tabulated in Tables VI-1 and VI-3. Monitoring wells IPA-1, IPA-2, and IPA 3 are shown on Plates 7-1 and 7-4.

Springs in the vicinity of the Lila Canyon permit (Table 7-1 and Appendices 7-1, 7-2, and 7-6) contains water-quality or -quantity data from three different surveys. JBR surveyed the springs in 1989 which consist of (S-1), 9 (S-9), 10 (S-10), 14 (S-14), 16(S-16, 16Z), H-1, H-2 (HC-2), H-3, H-4 (H-C4), H-5, H-6, H-7, H-8, H-9 (HC-9), H-10, H-11 (HC-11), H-13 (HC-13), H-14 (HC-14), H-18 (HC-18), H-19, H-20, H-21, H-22, and H-92. EarthFax Engineering also identified a number of springs and seeps in their surveys of 1993-1994, for which no water-quality analyses were done and which consist of; 1A,1B, 2, 3, 3A, 3B, 3C, 3D, 4, 5, 6, 7, 8, 8A, 8B, 9R, 10A, 11, 12, 12A, 12B, 12C, 12D, 12E, 13, 13A, 13B, 13Z, 14A, 15, 15A, 15B, 15C, 16A, 16B, 16C, 17, 17A, 17B, 18, 19A, 19B, 19C, 20, and 22 (Appendix 7-1). Elevations and locations of these monitoring stations are on Plate 7-1. Locations of springs 8B, 15A, 17B, and 19C could not be matched between the JBR and EarthFax surveys.

Horse Canyon Mine UPDES discharge points UT022926 - 001, - 002, and - 003 (monitored from 1979 to 1991) are on Plates 7-1 and 7-4. Currently monitored UPDES discharge points, UT040013- 001A and - 002A are also shown. Proposed UPDES points L-4-S and L-5-G are on Plate 7-4.

Data for surface-water monitoring points HCSW-1 (HSW-1, HC-1), HCSW-2, HCSW-3, B-1 (HC-2), and RF-1 are in Appendices 7-1, 7-2, and 7-6. Locations are shown on Plate 7-1. Locations for L-1-S, L-2-S, and L-3-S are on Plate 7-4. There are no baseline data for these points so they are not on Plate 7-1.

### **Permit Area Boundary Maps**

Several maps including Plate 5-1 show the location of the permit boundaries for the Horse Canyon mine area. The Permittee has divided the permit boundary into Permit Area A (Horse Canyon Mine) and Permit Area B (Lila Canyon Mine). These areas have been identified on Plate 5-1, which also indicates that Permit Area B is a significant revision to the Horse Canyon Mine Permit.

Plate 4-4 identifies the areas on and adjacent to the Horse Canyon Mine and proposed significant revision area that are designated Wilderness Study Areas (WSA's) or Wilderness Inventory Units (WIU's) currently being evaluated by the BLM for wilderness potential. Two WIU's and on WSA lie within and adjacent to the proposed significant revision area. The Turtle Canyon WSA and WIU encompass the eastern half of the permit area. The Desolation WIU extends from the south to encompass the southwestern part of the proposed significant area. The Turtle Canyon WIU extends west of the Turtle Canyon WSA.

### **Surface and Subsurface Ownership Maps**

Plates 4-1, 5-3, and 5-4 show surface and coal ownership in and contiguous to both the existing permit area and the proposed addition.

### **Subsurface Water Resource Maps**

Ground water was encountered in several bore holes as well as in the Horse Canyon Mine. Water-level elevation contours are on Plate 7-1; otherwise, areal and vertical distribution of aquifers within the proposed permit or adjacent areas are not shown on a map. Seasonal variation in the water levels is tabulated in Appendix 7-1 and 7-2 for the IPA wells. seasonal differences of head on cross sections and contour maps.

The MDC well in NW Section 9 of T 16 S, R 14 E, near the road junction, is listed in Table 7-2 - Water Rights; however, to the best of the Permittee's knowledge this well has been sealed. The Horse Canyon Well that is located nearer the Horse Canyon Mine surface facilities will be used during mine operation and reclamation, then cased and sealed after final reclamation activities are complete. (Section 722.400). These wells, which were installed for observation of ground water in the alluvium in Horse Canyon, are discussed in Sections 6.5.1 and 724.200. Both wells are shown on Plate 7-1.

S-26 and S-31, located south of the Williams Draw Fault, were offset with shallow piezometers A-26 and A-31 to observe ground water in the alluvium (Table 6-3). Table VI-3 does not indicate that these wells have been plugged and abandoned; however, the Permittee has no data on A-26 and A-31 (Section 6.5.1, p. 21) and considers these wells unusable for ground-water monitoring (Section 724.100). These wells are not shown on Plate 7-1.

The ground-water elevation in the Horse Canyon Mine, at the rotary car dump at the intersection of the Main slope and 3<sup>rd</sup> level, is described in Section 724.100 (page 14); it was approximately 5,800 feet in 1986 and the Permittee states that it probably has remained at this level since operations ceased in the Horse Canyon Mine. This projected ground-water elevation appears to have been used in projecting the

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piezometric surface mapped on Plate 7-1. The location of the dump is described in the text and is shown on Plate 7-1.

Water rights are listed in Table 7-2. The list includes Redden Spring, plus springs identified as Mont, Leslie, Cottonwood, Williams, Kenna, and Pine. In addition, there are eleven unnamed springs listed, plus a well. Locations are on Plate 7-3.

**Surface Water Resource Maps**

Locations of streams and seeps and springs are shown on Plate 7-1. There are no known perennial streams, lakes or ponds within the permit and adjacent areas.

Table 7-2 lists water rights and Plate 7-3 shows locations of these water rights.

Text in Section 724.200 refers to Plate 7-1 for the location of Horse Canyon Creek and Lila Canyon drainage and Little Park Wash. Range Creek drainage is mentioned in the description of the ground-water divide of the main aquifer in Section 724.100, but Range Creek lies 6 miles east of the Lila Canyon area and is not shown on any of the maps.

**Vegetation Reference Area Maps**

Figure 1 in Appendix 3-2 is a map showing the vegetation communities and the reference area in relation to the proposed disturbance, and Plate 3-2 shows vegetation communities of the proposed addition to the permit area.

**Well Maps**

Three water monitoring wells were drilled in the area, IPA #1, IPA #2 and IPA #3, to monitor mine water levels. The wells were cased and perforated at the coal seam to measure the head of water to rise. The well locations are shown on Plate 7-1.

Two wells were installed for observation of ground water in the alluvium in Horse Canyon. The MDC well, which has been sealed, and the Horse Canyon Well located nearer the Horse Canyon Mine surface facilities are shown on Plate 7-1.

One oil exploration hole was drilled south of the proposed Lila Canyon permit area, in Section 25, T. 16 S., R 14 E., SLM, by Forest Oil Company. The location of the hole is shown on Plate 6-2. According to the Division's records, the well was completed in October 1959. No oil, gas, or water was reported. The well was drilled to a depth of 12,602 feet. It spudded in the Price River Formation and was in that formation to a depth of 370 feet, then passed through the Blackhawk Formation from 370 feet to 906 feet, a thickness of 536 feet.

**Contour Maps**

Contour Maps of the proposed disturbed area and mining areas are included as Plates 5-2A, 5-2B, 7-1 and 7-2. These maps are USGS based contours and accurately represent the proposed permit and



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adjacent areas. Disturbed area maps are based on aerial photography for greater detail, and are tied to relevant USGS elevations.

The Permittee gave the Division premining, operational and reclamation contour maps of the Lila Canyon site. The scale of the maps and the contour intervals are adequate, because the maps have a scale of 1 inch equals 100 feet and have 5 foot contour intervals.

All maps and plans were prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, with assistance from experts in related fields (Section 712).

**Findings:**

The Permittee has met the minimum regulatory requirements for maps, plans and cross-sections.

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**OPERATION PLAN**

## **OPERATION PLAN**

### **MINING OPERATIONS AND FACILITIES**

Regulatory Reference: 30 CFR Sec. 784.2, 784.11; R645-301-231, -301-526, -301-528.

**Minimum Regulatory Requirements:**

The objectives of this section is to ensure that the Division is provided with comprehensive and reliable information on proposed underground mining activities, and to ensure that those activities are allowed to be conducted only in compliance with the regulatory program.

Provide a general description of the mining operations proposed to be conducted during the life of the mine within the proposed permit area, including, at a minimum, the following: a narrative description of the type and method of coal mining procedures and proposed engineering techniques, anticipated annual and total production of coal, by tonnage, and the major equipment to be used for all aspects of those operations; and, a narrative explaining the construction, modification, use, maintenance, and removal of the following facilities (unless retention of such facility is necessary for postmining land use is specified.) The following facilities must be described: dams, embankments, and other impoundments; overburden and topsoil handling and storage areas and structures; coal removal, handling, storage, cleaning, and transportation areas and structures; spoil, coal processing waste, mine development waste, and noncoal waste removal, handling, storage, transportation, and disposal areas and structures; mine facilities; and, water pollution control facilities.

**Analysis:**

The Permittee proposes to develop surface facilities and mine portals near Lila Canyon. The Permittee wants to develop the Lila Canyon facilities because access to the coal reserves through the Horse Canyon portals is not feasible.

Access to the coal will be through two 1,200-foot tunnels that will be driven from a cliff base. The ventilation portal will be driven from underground workings to the surface. See Plate 5-2 for the locations. Initial mining will be conducted by room-and-pillar methods in the Lower Sunnyside coal seam. Production in the first year is estimated to be 200,000 tons, the second to fifth year 1,000,000 to 1,500,000 tons per year. If demand increases, the Permittee will install longwall equipment and production could peak at 4,500,000 tons per year.

#### **Type and Method of Mining Operations**

Coal mining will begin in Section 15, T16S, R14E, in the Lower Sunnyside coal seam. Development of the Lower Sunnyside coal seam will be in a down dip direction toward the east. The seam will be accessed by two 1,200 foot slopes driven up at a 12 percent grade from the cliffs. The ventilation fan portal will be driven from underground workings to the surface.

Initial mining will be conducted by room-and-pillar method in the Lower Sunnyside coal seam. Production in the first year is estimated to be 200,000 tons, the second to fifth year 1,000,000 to 1,500,000 tons per year. In Appendix 4-3, Air Quality, the Permittee stated in a letter dated August 27, 1999 to the Division of Air Quality that a maximum of 1,500,000 tons will be produced every year.

If demand increases, the Permittee will install longwall equipment and production could peak at 4,500,000 tons per year. The estimated life-of-mine is 20 years.

## **OPERATION PLAN**

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Mine development will start with tunnel construction. Once the coal is encountered development will continue using continuous miners and various types of haulage equipment.

Ventilation of the mine will be by an exhaust type system. The Permittee estimates that 900,000 cfm will be required at full production. Intake air will be supplied by slopes and entries from the surface.

Dust suppression will be accomplished by the use of sprays on all underground equipment as required. Sprays will also be used along sections of the conveyors and some transfer points.

No major de-watering concerns are anticipated at this property. The workings are expected to produce some water with more water being produced as the depth of mining increases. Some of this water will be used for dust suppression. The remainder will be collected in sumps and pumped to mined out sections of the mine or to the surface and treated when necessary.

In Section 523, the Permittee listed the major mining equipment that will be used. The equipment is consistent with a major underground coal mining operation.

### **Facilities and Structures**

The new support facilities are described in Section 520 and shown on Plate 5-2 and in the appendixes in Chapter 5. Appendix 5-4, New Facility Design, shows the design for the roads and sewage system. Appendix 5-7 has the designs for the refuse pile. The new structures and facilities listed in Section 520 include:

- Mine Facilities Road
- Security Shack
- Mine Substation
- Office/Bathhouse/Warehouse Parking Area
- Office/Bathhouse
- Mine Parking
- Shop Warehouse
- Non-Coal Waste Area
- Equipment & Supplies Storage Area
- Sewer Tank & Drain Field
- Water Treatment Plant
- Potable Water Tank
- Process Water Tank
- Topsoil Pile
- Refuse Pile
- Sediment Pond
- Slope Access Road
- Rock Slopes
- Ventilation Fan
- Run of Mine (ROM) Underground Belt
- ROM Storage Pile
- Crusher
- Coal Storage Bin

## OPERATION PLAN

### Truck Scale and Loadout

The Permittee proposes to construct one impoundment, a sediment pond shown on Plate 5-2. Since Lila Canyon is an underground mine, no overburden or spoil will be removed. The Permittee does not plan on cleaning or processing the coal beyond crushing. Any coal mine waste produced from crushing will be placed in the refuse pile shown on Plate 5-2.

In Section 528.100 the Permittee describes how the coal will be handled and stored. The Permittee outlined the coal storage area on Plate 5-2. The Air Quality Approval Order allows for stockpiling coal.

In Section 528.300 the Permittee described the handling and storage of spoil, coal processing waste, mine development waste, and noncoal waste. Since Lila Canyon is an underground mine, the Permittee does not expect any excess spoil. Coal mine waste will be disposed of in the areas shown on Plate 5-2.

The water pollution facilities include the drain fields and sediment pond.

### Findings:

The Permittee has described the general mining operations proposed to be conducted during the life of the mine within the proposed permit area; therefore, the Permittee has met the minimum requirements of the regulations.

## EXISTING STRUCTURES

Regulatory Reference: 30 CFR Sec. 784.12; R645-301-526.

### Minimum Regulatory Requirements:

"Existing Structure" means a structure or facility used in connection with or to facilitate coal mining and reclamation operations for which construction began prior to January 21, 1981.

Provide a description of each existing structure proposed to be used in connection with or to facilitate the surface coal mining and reclamation operation. The description shall include: the location; plans of the structure which describe its current condition; approximate dates on which construction of the existing structure was begun and completed; and, a showing, including relevant monitoring data or other evidence, whether the structure meets the permanent program performance standards or, if the structure does not meet the permanent program performance standards, a showing whether the structure meets the interim program performance standards.

Provide a compliance plan for each existing structure proposed to be modified or reconstructed for use in connection with or to facilitate the surface coal mining and reclamation operation. The compliance plan shall include: design specifications for the modification or reconstruction of the structure to meet the permanent program design and performance standards; a construction schedule which shows dates for beginning and completing interim steps and final reconstruction; provisions for monitoring the structure during and after modification or reconstruction to ensure that the permanent program performance standards are met; and, a showing that the risk of harm to the environment or to public health or safety is not significant during the period of modification or reconstruction.

### Analysis:

Two existing structures appear in the pre-mined proposed permit area, a County road and a 36 -inch culvert is shown on Plate 5-1A. It has been determined that the culvert is not large enough to use during the mining process. The culvert will be removed and replaced with a 60 -inch culvert. The county road will be excavated during upgrading of the culvert. The county road is considered adequate for continued use and will not be upgraded.

### Findings:

The Permittee met the minimum Existing Structures requirements of the regulations.

## PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR Sec. 784.17; R645-301-411.

### Minimum Regulatory Requirements:

For any publicly owned parks or any places listed on the National Register of Historic Places that may be adversely affected by the proposed operation, each plan shall describe the measures to be used to prevent adverse impacts, or if valid existing rights exist or joint agency approval is to be obtained, to minimize impacts.

The Division may require the applicant to protect historic and archeological properties listed on or eligible for listing on the National Register of Historic Places through appropriate mitigation and treatment measures. Appropriate mitigation and treatment measures may be required to be taken after permit issuance provided that the required measures are completed before the properties are affected by any mining operation

### Analysis:

The proposed addition to the permit area contains no known cultural resources listed or eligible for listing in the National Register of Historic Places, public parks, or units of the National System of Trails or the Wild and Scenic Rivers system. Therefore, no protection plan is needed.

On September 22, 1999, March 8, 2001, and March 27, 2001, the Division wrote letters to the State Historic Preservation Office (SHPO) requesting their concurrence with the project. Because the Division did not receive a response, a Division representative visited the office of the Division of State History on April 18, 2001. Jim Dykman of SHPO told this representative that since SHPO did not respond within 30 days of the Division's letters, SHPO had concurred with the Division's conclusion that there would be "no effect" on historic properties. This determination is documented by Paul Baker in a memorandum to file dated April 18, 2001.

The Turtle Canyon WSA overlaps with the proposed addition to the permit area in the following locations:

Township 16 South, Range 14 East  
Section 13, E $\frac{1}{2}$  NW $\frac{1}{4}$ , NE $\frac{1}{4}$   
Section 24, NE $\frac{1}{4}$  NW $\frac{1}{4}$ , N $\frac{1}{2}$  NE $\frac{1}{4}$

Township 16 South, Range 15 East  
Section 19, SE $\frac{1}{4}$  SW $\frac{1}{4}$ , Lots 3 and 4  
Section 30, SW $\frac{1}{4}$  NE $\frac{1}{4}$

The Permittee has not proposed surface disturbance activities in these areas. If the Permittee proposes any activities in these areas, they will be subject to additional permitting requirements.

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## OPERATION PLAN

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The BLM has prepared two EA's discussing the anticipated effects of readjusting two coal leases and how mining would affect the Turtle Canyon WSA. According to the December 1994 EA, the greatest effects of subsidence from other mines in the area have been general ground lowering and some surface tension cracks that tend to self heal after a year or two. In areas with mining depths greater than 1500 feet, little measurable subsidence has occurred. The BLM concluded that the lease readjustments and underground mining in the WSA are in conformance with the approved land use plan.

The Land Use Resource Information section of this analysis discusses the 1999 Utah Wilderness Inventory. According to information from the BLM and contained in the application, the land will not be managed as a WSA until further analyses have been completed.

### Findings:

The Permittee has met the minimum Protection of Public Parks and Historic Places requirements of the regulations.

## RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR Sec. 784.18; R645-301-521, -301-526.

### Minimum Regulatory Requirements:

Describe, with appropriate maps and cross sections, the measures to be used to ensure that the interests of the public and landowners affected are protected if, the applicant seeks to have the Division approve conducting the proposed underground mining activities within 100 feet of the right-of-way line of any public road, except where mine access or haul roads join that right-of-way, or relocating a public road.

### Analysis:

Appendix 1-4 of the application contains a copy of a letter from the Emery County Road Department dated January 10, 2001. The letter states the following:

"Said approval authorizes mining activities to be conducted within 100 feet of the public road with the provision that, to provide for public safety, a 6 foot chain link fence shall be constructed adjacent to the road right-of-way in the vicinity of the surface facilities area.

"Additionally, the location of the fence must not restrict continued public use of the road."

Plate 5-2 shows that the chain link fence will border the road.

### Findings:

The Permittee has addressed the minimum Relocations or Use of Public Roads requirements of the regulations.

## AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR Sec. 784.26, 817.95; R645-301-244.

### Minimum Regulatory Requirements:

Coal mining and reclamation operations will be conducted in compliance with the requirements of the Clean Air Act (42 U.S.C. Sec. 7401 et seq.) and any other applicable Utah or federal statutes and regulations containing air quality standards. The application will contain a description of coordination and compliance efforts which have been undertaken by the applicant with the Utah Bureau of Air Quality.

### Analysis:

Appendix 4-3 contains a copy of the Air Quality Approval Order from the Division of Air Quality. A letter in Appendix 4-3 from Jay Marshall to the Division of Air Quality says the Permittee was requesting approval for a throughput of up to 2,000,000 tons per year, but the Approval Order says up to 1,500,000 tons of coal could be mined in a rolling twelve month period. Section 523 of the application indicates production should be between 1,000,000 and 1,500,000 tons per year for the first five years, but that production could peak at 4,500,000 tons. Therefore, the application is consistent with the Air Quality Approval Order (for the first five years). Any increase in production after five years would require amendments to both the Air Quality Approval Order and the MRP.

### Findings:

The Permittee has addressed the minimum regulatory requirements for the Air Pollution Control plan.

## COAL RECOVERY

Regulatory Reference: 30 CFR Sec. 817.59; R645-301-522.

### Minimum Regulatory Requirements:

Underground mining activities shall be conducted so as to maximize the utilization and conservation of the coal, while utilizing the best technology currently available to maintain environmental integrity, so that re-affecting the land in the future through surface coal mining operations is minimized.

### Analysis:

As part of the federal mine plan approval and to meet the requirements of the federal leases, the Permittee is required to submit a R2P2 to the BLM. The BLM staff analyzed the R2P2 for maximum economic recovery and found that the Permittee met that requirement.

The Division bases their findings on several factors including technical analysis from other agencies, such as the BLM, for maximum coal recovery. The Division staff reviewed the mine plan and found no significant coal reserves within the permit area that were not being recovered.



## OPERATION PLAN

The BLM analyzed the available coal resources and prepared a R2P2 approval document for the Lila Canyon area. The BLM has staff that specialize in determining if the mine plan will maximize coal recovery. The Division determines that maximum coal recovery will be conducted.

### Findings:

The Permittee has addressed the minimum Coal Recovery requirements of the regulations.

## SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR Sec. 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

### Minimum Regulatory Requirements:

#### Renewable resources survey

Include a survey, which shall show whether structures or renewable resource lands exist within the proposed permit area and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of such structures or renewable resource lands. If the survey shows that no such structures or renewable resource lands exist, or no such material damage or diminution could be caused in the event of mine subsidence, and if the Division agrees with such conclusion, no further information need be provided in the application under this section.

#### Subsidence control plan

In the event the survey shows that such structures or renewable resource lands exist, and that subsidence could cause material damage or diminution of value or foreseeable use of the land, or if the Division determines that such damage or diminution could occur, the application shall include a subsidence control plan which shall contain the following information:

- 1.) A description of the method of coal removal, such as longwall mining, room-and-pillar removal, hydraulic mining, or other extraction methods, including the size, sequence, and timing for the development of underground workings.
- 2.) A map of underground workings which describes the location and extent of areas in which planned-subsidence mining methods will be used and which includes all areas where measures will be taken to prevent or minimize subsidence and subsidence related damage and where appropriate, to correct subsidence-related material damage.
- 3.) A description of the physical conditions, such as depth of cover, seam thickness, and lithology, which affect the likelihood or extent of subsidence and subsidence-related damage.
- 4.) A description of monitoring, if any, needed to determine the commencement and degree of subsidence so that, when appropriate, other measures can be taken to prevent, reduce, or correct material damage.
- 5.) Except for those areas where planned subsidence is projected to be used, a detailed description of the subsidence control measures that will be taken to prevent or minimize subsidence and subsidence-related damage, including, but not limited to: backstowing or backfilling of voids; leaving support pillars of coal; leaving areas in which no coal is removed, including a description of the overlying area to be protected by leaving the coal in place; and, taking measures on the surface to prevent material damage or lessening of the value or reasonably foreseeable use of the surface.
- 6.) A description of the anticipated effects of planned subsidence, if any.
- 7.) A description of the measures to be taken to mitigate or remedy any subsidence-related material damage to, or diminution in value or reasonably foreseeable use of the land, or structures or facilities to the extent required under State law.
- 8.) Other information specified by the Division as necessary to demonstrate that the operation will be conducted in accordance with the performance standards for subsidence control.

#### Performance standards for subsidence control

The operator shall either adopt measures consistent with known technology which prevent subsidence from causing material damage to the extent technologically and economically feasible, maximize mine stability, and maintain the value and reasonably foreseeable use of surface lands; or, adopt mining technology which provides for planned subsidence in a predictable and controlled manner. Nothing in this part shall be construed to prohibit the standard method of room-and-pillar mining.

The operator shall comply with all provisions of the approved subsidence control plan.

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The operator shall correct any material damage resulting from subsidence caused to surface lands, to the extent technologically and economically feasible, by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses which it was capable of supporting before subsidence, and, to the extent required under applicable provisions of State law, either correct material damage resulting from subsidence caused to any structures or facilities by repairing the damage or compensate the owner of such structures or facilities in the full amount of the diminution in value resulting from the subsidence. Repair of damage includes rehabilitation, restoration, or replacement of damaged structures or facilities. Compensation may be accomplished by the purchase prior to mining of a non-cancelable premium-prepaid insurance policy.

Underground mining activities shall not be conducted beneath or adjacent to: public buildings and facilities; churches, schools, and hospitals; or, impoundments with a storage capacity of 20 acre-feet or more or bodies of water with a volume of 20 acre-feet or more, unless the subsidence control plan demonstrates that subsidence will not cause material damage to, or reduce the reasonably foreseeable use of, such features or facilities. If the Division determines that it is necessary in order to minimize the potential for material damage to the features or facilities described above or to any aquifer or body of water that serves as a significant water source for any public water supply system, it may limit the percentage of coal extracted under or adjacent thereto.

If subsidence causes material damage to any of the features or facilities, the Division may suspend mining under or adjacent to such features or facilities until the subsidence control plan is modified to ensure prevention of further material damage to such features or facilities.

The Division shall suspend underground mining activities under urbanized areas, cities, towns, and communities, and adjacent to industrial or commercial buildings, major impoundments, or perennial streams, if imminent danger is found to inhabitants of the urbanized areas, cities, towns, or communities.

Within a schedule approved by the Division, the operator shall submit a detailed plan of the underground workings. The detailed plan shall include maps and descriptions, as appropriate, of significant features of the underground mine, including the size, configuration, and approximate location of pillars and entries, extraction ratios, measures taken to prevent or minimize subsidence and related damage, areas of full extraction, and other information required by the Division. Upon request of the operator, information submitted with the detailed plan may be held as confidential.

### **Notification**

At least 6 months prior to mining, or within that period if approved by the Division, the underground mine operator shall mail a notification to all owners and occupants of surface property and structures above the underground workings. The notification shall include, at a minimum, identification of specific areas in which mining will take place, dates that specific areas will be undermined, and the location or locations where the operator's subsidence control plan may be examined.

## **Analysis:**

### **Renewable Resources Survey**

The Permittee acknowledges that renewable resources exist in the proposed subsidence area. Grazing is identified as a land use in the Lila Canyon tract, and there is at least some recharge to aquifers. Since renewable resources exist in the permit area, the Permittee conducted a subsidence survey.

According to the application, the main potential effects of subsidence would be escarpment failure and disruption of surface and ground water. Two eagle nests are in the subsidence area. Protection of these nests or mitigation for loss of the nests is discussed in detail in the section of this TA dealing with the fish and wildlife protection plan.

The mitigation for losses of wildlife habitat through subsidence could include habitat enhancement to increase production of selected forage species, and development of off-site water sources, such as guzzlers.

A standard stipulation on federal leases is that the lessee monitor the effects of underground mining on vegetation. The application includes a plan to monitor vegetation with color infrared photography every five years. This commitment is consistent with commitments other mines have made and is acceptable.

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**Subsidence Control Plan**

- Coal will be removed by room-and-pillar methods. If the demand for coal increases, then longwall methods may be used. Details of the mining plan are given in Section 522 and 523. Plate 5-5 shows the mine layout and the sequence and timing of mining. Room-and-pillar mining can cause subsidence to occur under low overburden cover. R645-301-525.313 states that nothing in the subsidence regulations will prohibit the standard method of room-and-pillar mining.
- On Plate 5-5 the Permittee shows the proposed underground workings and the areas of potential subsidence. Plate 5-5 shows those areas where subsidence control methods (first mining only) will be used to protect escarpments. The Permittee shows the location of the seeps, springs, and eagle nests on Plate 5-3.
- Chapter 6 of the application contains information of the depth of cover, seam thickness and lithology of the permit and nearby areas. The information is sufficient for the Division to use in the analysis of subsidence.
- R645-301-525.440 requires that the Permittee describe the subsidence monitoring plan. The Permittee commits to the following:

Aerial subsidence monitoring will be done annually while the significant subsidence is taking place. The subsidence monitoring will be initiated in an area prior to any 2<sup>nd</sup> mining being done within that area. Initially a 200 foot grid along with baseline photograph will be established prior to any 2<sup>nd</sup> mining. Approximately 12-16 control points will be needed to cover the total mining area. Six of these points will be located outside of the subsidence zone. The accuracy of this survey will be plus or minus 6 inches horizontally and vertically. From this data a map will be created that will show subsided areas. Once a year a follow up aerial survey will be performed to determine the extent and degree of active subsidence. Subsidence monitoring will continue for five years after mining stops or until subsidence is complete. If for three years in a row the subsidence is measured to be less than 10 percent of the highest subsidence year, subsidence will be determined to be complete, and no additional monitoring for that area will be required.

A ground survey will be performed in conjunction with the quarterly water monitoring program. During the normal water monitoring program any cracks observed will be noted and reported to DOG.

The Division agrees with the general concepts in the subsidence monitoring plan. The aerial monitoring program is similar to other programs used by mines in the area. The

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Division has found that aerial surveys provide good subsidence information. Ground surveys are useful because the ground crews can spot cracks.

Subsidence monitoring will continue for a minimum of 5 years. If for three years in a row the subsidence is measured to be less than 10 percent of the highest subsidence year, subsidence will be determined to be complete, and no additional monitoring for that area will be required.

- The Permittee states that the escarpments at the outcrop will be protected from subsidence by allowing first mining only within 200 feet of the outcrops. The anticipated effects of planned subsidence may include tension cracks, fissures, sinkholes and lowering of the ground surface.

The Permittee considers contingent plans for subsidence. The Permittee states in the amendment that if subsidence causes damage, the land will be restored to a condition capable of maintaining the value and reasonable foreseeable uses that the land was capable of supporting before subsidence.

- The Permittee states that anticipated effects of subsidence may include tension cracks, fissures, or sinkholes and ground lowering. Those subsidence features are typical in Utah when low overburden cover exists. In the past such features have caused some damage that can be mitigated. The main concern with subsidence is damage to wildlife, livestock, people and water loss.

The Division has received comments from the public that subsidence might damage seeps and springs in the area. One landowner near the Lila Canyon project has expressed concern about water loss.

The Permittee has committed in Sections 525.160 and 525.231 of the MRP to restore, to the extent technologically and economically feasible material damage to the surface lands. This commitment is in accordance with regulatory requirements and is considered adequate.

- The Permittee describes measures to be taken to mitigate or remediate any subsidence-related damage in Section 525.

The land will be restored to a condition capable of maintaining the value and reasonable foreseeable uses that it was capable of supporting before the subsidence.

The Permittee commits to remediate any damage to water rights.

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### **Performance Standards for Subsidence Control**

The Permittee is required to meet all the subsidence performance standards.

### **Notification**

At least six months prior to mining, the Permittee will mail a notification to all owners and of surface properties and structures above the proposed underground workings. The notification will include, at a minimum, identification of specific areas in which mining will take place, dates that specific areas will be undermined, and the locations where the Permittee's subsidence control plan may be examined.

### **Findings:**

The Permittee has met the minimum subsidence control requirements of the regulations.

## **SLIDES AND OTHER DAMAGE**

Regulatory Reference: 30 CFR Sec. 817.99; R645-301-515.

### **Minimum Regulatory Requirements:**

At any time a slide occurs which may have a potential adverse effect on public, property, health, safety, or the environment, the person who conducts the underground mining activities shall notify the Division by the fastest available means and comply with any remedial measures required by the Division.

The permit application will incorporate a description of notification when potential impoundment hazards exist. The requirements for the description are: If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment will promptly inform the Division of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the Division will be notified immediately. The Division will then notify the appropriate agencies that other emergency procedures are required to protect the public.

### **Analysis:**

Given the geologic characteristics in the vicinity of the mine, the likelihood of a slide is remote. The Permittee committed to phone the Division if a slide occurred. The Division would then be informed of the remedial plan. The adequacy of the remediation plan will be determined by the Division. The Permittee has also committed to report any potential hazards found during impoundment inspection.

### **Findings:**

The Permittee meets the minimum regulatory requirements for slides and other damage.

## FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

### Minimum Regulatory Requirements:

#### Protection and enhancement plan

Each application shall include a description of how, to the extent possible using the best technology currently available, the operator will minimize disturbances and adverse impacts on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, during the surface coal mining and reclamation operations and how enhancement of these resources will be achieved where practicable. This description shall apply, at a minimum, to species and habitats identified under R645-301-322. The description shall include: protective measures that will be used during the active mining phase of operation. Such measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, the monitoring of surface-water quality and quantity; and, enhancement measures that will be used during the reclamation and postmining phase of operation to develop aquatic and terrestrial habitat. Such measures may include restoration of streams and other wetlands, retention of ponds and impoundments, establishment of vegetation for wildlife food and cover, and the placement of perches and nest boxes. Where the plan does not include enhancement measures, a statement shall be given explaining why enhancement is not practicable.

Each operator shall, to the extent possible using the best technology currently available: ensure that electric powerlines and other transmission facilities used for, or incidental to, underground mining activities on the permit area are designed and constructed to minimize electrocution hazards to raptors, except where the Division determines that such requirements are unnecessary; locate and operate haul and access roads so as to avoid or minimize impacts on important fish and wildlife species or other species protected by State or Federal law; design fences, overland conveyors, and other potential barriers to permit passage for large mammals except where the Division determines that such requirements are unnecessary; and, fence, cover, or use other appropriate methods to exclude wildlife from ponds which contain hazardous concentrations of toxic-forming materials.

#### Endangered and threatened species

No underground mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary or which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The operator shall promptly report to the Division any State- or federally-listed endangered or threatened species within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with appropriate State and Federal fish and wildlife agencies and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

#### Bald and golden eagles

No underground mining activity shall be conducted in a manner which would result in the unlawful taking of a bald or golden eagle, its nest, or any of its eggs. The operator shall promptly report to the Division any golden or bald eagle nest within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with the U.S. Fish and Wildlife Service and also, where appropriate, the State fish and wildlife agency and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

Nothing in these regulatory requirements shall authorize the taking of an endangered or threatened species or a bald or golden eagle, its nest, or any of its eggs in violation of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq., or the Bald Eagle Protection Act, as amended, 16 U.S.C. 668 et seq.

#### Wetlands and habitats of unusually high value for fish and wildlife

The operator conducting underground mining activities shall avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Underground mining activities shall avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

### Analysis:

#### Protection and Enhancement Plan

In Section 333, the application says the major impacts to wildlife in and around the mine will be the loss of habitat during construction and through the life of the mine. It also says most wildlife will either accept the mine or adjust behavior to coexist with the operation.

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Operational impacts, such as collisions with mine-associated vehicles, loss of habitat during the life of the mine, wildlife disturbance, and fragmentation of nearby habitat, are difficult to quantify but would be the greatest impacts from the mine. The USFWS commented that the mine's disturbance would kill most burrowing animals and others that are less mobile. It would also result in habitat fragmentation and dislocation of some animals to less desirable or already-occupied areas. Although wildlife can coexist with mining operations, animals may be forced to adjust their behaviors and may be otherwise stressed in ways that reduce their chances for survival

The Permittee has committed to train mine employees annually on environmental awareness. This will include wildlife protection measures, such as avoidance during stress periods, caution in driving, recognition of threatened or endangered species, and instructions to remove wildlife carcasses well off the road to avoid collisions with scavenging raptors. UDWR will be notified of any large game animals killed on the road, and the Permittee will request that they be moved to safeguard raptors. The Permittee will instruct personnel as to current regulations pertaining to off road vehicle and firearm use.

Suitable mine discharge water will be made available to wildlife. The Permittee will need to ensure the water rights allow for this use and that the water quality is satisfactory. The water rights listed in Table 7-2 indicate the uses are for "mining" and "other." Ensuring that water quality is suitable should be possible through testing required for the discharge permit.

The application discusses the possible benefits of water in the sediment pond to wildlife. The pond will be monitored to assure there are no negative effects to wildlife.

UDWR indicates there are bighorn sheep that use the cliffs above the surface facilities. Use of the area by bighorn sheep may be limited during operations, but Lila Canyon, northeast of the disturbed area, is remote enough to provide refuge for the sheep. UDWR also commented that Lila Canyon, and more particularly the water resources up the canyon are heavily used by chukars, and UDWR thinks the mining operation will displace these birds from the disturbed area. They suggested the Permittee install some guzzlers of a suitable design and said these water sources would greatly benefit chukars and other area wildlife. Bighorn sheep will also benefit from watering structures. The Permittee has agreed to install two guzzlers. Designs are available for guzzlers that blend into the surrounding area extremely well and require almost no maintenance.

The conveyor from the rock tunnel to the run of mine coal stockpile is adequately elevated to not restrict movements by large mammals. Other conveyors are close enough to loadout and other facilities that it is unlikely large mammals will use these areas.

The only fence shown on the surface facilities map would be along the road. It is about 1000 feet long. Big game tend to use drainage corridors for migrational movements, and although there are some minor drainages that come into the surface facilities area, the major drainage in this area is Lila Canyon. The Lila Canyon drainage is to the north of the surface facilities, and any big game movements in this area would not be restricted by the fence. Therefore, the Division has determined the application meets the requirements of R645-301-358.520.

The Permittee commits to use power lines designed using the best technology available to protect raptors from electrocution hazards. The BLM's EA contains power line designs. Based on this

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information, the Division has determined the application complies with the requirements of R645-301-358.510.

The Permittee has also agreed to participate in a habitat enhancement project on about 70 acres to convert this from pinyon-juniper woodland to shrubs, forbs, and grasses. UDWR believes the conversion from pinyon-juniper to a grass/shrub community would profit both big game and raptors. In their experience, jackrabbit and cottontail rabbit populations increase markedly with this change in vegetation, and they believe this would greatly benefit raptors.

As the mitigation projects are completed, some details should be included in the application or MRP. If this does not happen, it is easy to lose track of what was accomplished. If the Permittee or anyone else visits the mitigation sites, general comments on use should be noted and reported to UDWR and the Division. These are suggestions and are not regulatory requirements.

**Endangered and Threatened Species and Bald and Golden Eagles**

In a letter dated April 28, 2000, the USFWS concurred with the Division's findings that the project is not likely to affect the southwestern willow flycatcher, the bald eagle, or listed threatened or endangered plant species. Any water depletions from the Upper Colorado River Basin are considered to jeopardize the continued existence or adversely modify the critical habitat of four Colorado River endangered fish species, but depletions are addressed by existing inter-agency Section 7 agreements. No mitigation is required for annual depletions under 100 acre-feet, and since the depletion resulting from the mine is expected to be about 21.3 acre-feet, no mitigation is required at this time.

On July 18, 2001, the Division received correspondence from the USFWS that the area could contain habitat for the Mexican spotted owl, a listed threatened species. A stipulation on the permit requires additional information about whether the area contains suitable habitat for this species. If habitat is found, it will be necessary to modify the operations plan.

The USFWS commented in a letter dated April 14, 1999, that there should be an evaluation of effects on the Colorado pikeminnow (formerly the Colorado squawfish) of a water discharge line to the Price River. This discharge line was apparently proposed early in the planning process for the mine, but it is no longer being planned.

The Permittee commits to establish a one-half mile buffer zone of no disturbance during critical nesting periods for raptors. This is adequate to protect eggs and chicks from abandonment, and this commitment combined with the mitigation discussed above should be adequate for the loss of use of nests near the mine. If any nests are active when the Permittee plans to begin construction, it might be necessary to delay construction until the nesting season has ended.

Two nests shown on Plate 5-3 are on escarpments in the subsidence area and could be lost as a result of subsidence. The Division consulted with the USFWS and the UDWR about the potential loss of nests in the area, and it was agreed the Permittee should commit to providing alternative nest sites if a nest is lost as a result of subsidence. In Section 322.220, the application says that if a nest is lost through subsidence, the Permittee will work with the USFWS and the UDWR to analyze the potential and construction of alternative nest sites. This commitment is considered to be adequate.



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It is possible the nests that will be undermined could be used in spite of their proximity to the mine. For this reason, it will be necessary to monitor the sites near the time when they would be undermined, and the application contains a commitment to conduct a raptor survey to ensure that raptors or their young will not be adversely affected through any mine-related activity. It might be necessary to preclude birds from using the nests when subsidence is expected. If any previously unknown nests are found during a raptor survey, it may be necessary to develop further protection or mitigation plans.

Since no threatened or endangered species are known to occur in the proposed addition to the permit area, no protection or mitigation measures are needed.

### **Wetlands and Habitats of Unusually High Value for Fish and Wildlife**

The proposed disturbed area is within an area classified as critical winter range for deer and elk, and the application discusses a mitigation plan for the habitat that would be lost during the life of the mine. The "Protection and Mitigation Plan" section of this review discusses this issue further.

There are no wetlands or riparian areas within the proposed addition to the permit area. While there are a few springs in the area, there are no perennial drainages.

### **Findings:**

The application provided an adequate Fish and Wildlife Protection Plan to meet the minimum requirements of the regulations. If habitat for the Mexican spotted owl is found in the permit area, it will be necessary to modify the operations plan.

## **TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

### **Minimum Regulatory Requirements:**

#### **Topsoil removal and storage**

All topsoil shall be removed as a separate layer from the area to be disturbed, and segregated. Where the topsoil is of insufficient quantity or of poor quality for sustaining vegetation, the selected overburden materials approved by the Division for use as a substitute or supplement to topsoil shall be removed as a separate layer from the area to be disturbed, and segregated. If topsoil is less than 6 inches thick, the operator may remove the topsoil and the unconsolidated materials immediately below the topsoil and treat the mixture as topsoil.

The Division may choose not to require the removal of topsoil for minor disturbances which occur at the site of small structures, such as power poles, signs, or fence lines; or, will not destroy the existing vegetation and will not cause erosion.

All materials shall be removed after the vegetative cover that would interfere with its salvage is cleared from the area to be disturbed, but before any drilling, blasting, mining, or other surface disturbance takes place.

Selected overburden materials may be substituted for, or used as a supplement to, topsoil if the operator demonstrates to the Division that the resulting soil medium is equal to, or more suitable for sustaining vegetation than, the existing topsoil, and the resulting soil medium is the best available in the permit area to support revegetation.

Materials removed shall be segregated and stockpiled when it is impractical to redistribute such materials promptly on regraded areas. Stockpiled materials shall: be selectively placed on a stable site within the permit area; be protected from contaminants and unnecessary compaction that would interfere with revegetation; be protected from wind and water erosion through prompt establishment and maintenance of an effective, quick growing vegetative cover or through other measures approved by the Division; and, not be moved until required for redistribution unless approved by the Division.

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Where long-term surface disturbances will result from facilities such as support facilities and preparation plants and where stockpiling of materials would be detrimental to the quality or quantity of those materials, the Division may approve the temporary distribution of the soil materials so removed to an approved site within the permit area to enhance the current use of that site until needed for later reclamation, provided that: such action will not permanently diminish the capability of the topsoil of the host site; and, the material will be retained in a condition more suitable for redistribution than if stockpiled.

The Division may require that the B horizon, C horizon, or other underlying strata, or portions thereof, be removed and segregated, stockpiled, and redistributed as subsoil in accordance with the above requirements if it finds that such subsoil layers are necessary to comply with the revegetation.

### **Analysis:**

Chapter 2, Soils, Sections 230 through 234, discusses the soils operation plan for the proposed Lila Canyon Mine. Topsoil salvage and stockpiling and subsoil salvage and protection are reviewed under the following headings in this Analysis:

- Topsoil and Subsoil Removal
- Topsoil Substitutes and Supplements
- Topsoil Storage

### **Topsoil and Subsoil Removal**

#### *Available Soil Resources*

The 1998 Order 1 soil survey, Appendix 2-3, identifies 157,600 cubic yards of available soil for salvage from the 48 acre disturbance (average salvage depth is 24 inches). This estimate is based on the entire disturbance area. However approximately 20 acres of ground within the perimeter of the mine facilities area will not be disturbed (48.23 acres of potential disturbance minus the 28.11 acres of ground in bonding calculation = 20 acres.) Plate 2-3, Soil Salvage and Replacement, shows these undisturbed islands within the disturbed area boundary.

The Available Soil Resources Table, Section 232.100 page 11, identifies "actual topsoil salvage" as 52,129 cubic yards from 25.06 acres for an average salvage depth of 15.6 inches.

Soil salvage areas are broken down by soil survey map units and are identified on the Salvageable Soils Map, Appendix A2 of Appendix 2-3, Order 1 soil survey. The Salvageable Soils Map shows each soil survey map unit, soil description sites, and potential salvage depths.

#### *Topsoil Salvage Practices*

In accordance with R645-301-232.300, since the A horizon is less than six inches deep, the upper 6 to 12 inches that consist of both the A and B horizon materials will be salvaged and stored as topsoil. Therefore, the MRP states that "actual topsoil salvage" will be between 6 and 18 inches (see Available Soil Resources table in Section 232.100). Large stones, 36 inches or less, are considered part of the soil layer and are included in the topsoil volume estimates.

Plate 2-3, Soil Salvage and Replacement, shows salvage depth in each map unit. A maximum of 18 inches will be salvaged or down to shale, whichever is less. The Available Soil Resources table in Section 232.100 shows "actual topsoil salvage" as 52,129 cubic yards from 25.06 acres for an average salvage depth of 15.6 inches. The specifics of that table have been excerpted and printed below.

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**Actual Soil Salvage Volumes**

<b>Actual Soil Salvage Areas</b>	<b>Soil Depth (inches)</b>	<b>Acres</b>	<b>Soil Volume (yd<sup>3</sup>)</b>
Topsoil* SBG	18	11.12	26,910
Topsoil* VBJ	18	4.46	10,793
Topsoil* XBS	12	4.77	7,698
Topsoil* DSH	18	1.39	3,364
Topsoil* RBL	8	2.56	2,753
Topsoil* RBT	6	0.76	613
<b>Total</b>		<b>25.06</b>	<b>52,129</b>

\* A horizons < 6 inches; topsoil defined as top 18 inches. Refer to Available Soil Resources Table, Section 232.100 for classification descriptions.

Topsoil salvage at the proposed exhaust fan site located near the coal outcrop will be stored in a berm in the immediate vicinity of the fan installation (Plate 5-2). The proposed fan site is at an elevation of about 6400 feet and is located on a narrow bench, with a slope of about 40 to 45 percent. The soil survey identifies an approximate salvage depth of 6 inches for the RBT soils. The approximately 800 cubic yards of topsoil salvaged and stored in the berm will be protected by seeding and a silt fence (Section 233.100).

Topsoil salvage will occur under the supervision of a soil scientist. Topsoil will be removed from excavation areas and stockpiled prior to construction activity. Any vegetation and boulders that might interfere with topsoil salvage will be removed prior to topsoil removal. According to Section 232.100, boulders of approximately three feet in diameter and larger will be separated from the topsoil. The Permittee estimates there will be about 10,000 cubic yards of these boulders stored above ground, and this

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volume is in addition to the topsoil volumes. These will be piled or placed at appropriate locations, such as adjacent to roads and pads, but no attempt will be made to collect them into common piles. Rocks less than three feet in diameter will be stored with the topsoil.

Topsoil removal sequence will start from the lower elevations of the site and proceed up slope. The Division encourages salvaging native soils with intrinsic rock content. Using these inherently rocky soils should enhance reclamation success by providing an environment similar to native conditions. Rock content provides for a more stable reclaimed surface, aids in water harvesting and water holding capacity of interstitial soils, and creates wildlife habitat and niches on the surface where surface boulders and larger cobble sized rocks are placed. Every effort should be made to minimize mixing the deeper subsoils containing extremely high rock content with the surface soils and shallow subsoils containing lower amounts of rock..

Surface disturbance will not occur on the acreage identified as "Undisturbed Area." (i.e. Plate 2-3, Soil Salvage and Replacement, shows three undisturbed islands within the disturbed area boundary).

Plate 2-3 shows an access road to and around the topsoil. Soil on this road will be salvaged and stockpiled in a berm around the topsoil pile as stated in Section 232.100 and referred to as a footnote in the Table of Available Soil Resources Section 232.100. The Division understands that the top 18 inches of soil from the VBJ soils will be salvaged and used to form berms around the perimeter of the topsoil storage yard.<sup>3</sup> A sign will be posted on this berm to indicate that it is composed of topsoil.

*Subsoil Segregation and Salvage Practices*

The MRP states that subsoil deeper than 18 inches from Soil Map Units SBG, DSH, and VBJ will not be salvaged and will remain for use as construction fill during grading activities. Although these subsoils will be used as fill, they will be needed during reclamation to re-establish rooting depth potential. The ability of the soil to store moisture from one year to the next in the upper eight feet has been understood for a long time.<sup>1</sup> Studies of plant phenology have clearly shown that plants in arid areas use soil water from increasing depths as the growing season continues, and if there is inadequate rooting depth, production and vegetative cover will decrease.<sup>2</sup> A good indication of the depth of soil needed is the rooting depth of the plants currently growing on the site, as reported in the Order I Survey and excerpted into the table below.

Comparison of Potential Soil Salvage Depth, Rooting Depth and Subsurface Rock Content

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<sup>3</sup> Personal communication between Tom Paluso (Environmental Industrial Service) and Priscilla Burton (DOGM) in March 2001.

<sup>1</sup> Merrill, Lewis A. 1910. A Report of Seven Years' Investigation of Dry Farming Methods. Utah Agricultural College Experiment Station. Bulletin No. 112.

<sup>2</sup> Baker, Paul B. 1988. Nutrient and Water Relationships between Crested Wheatgrass and Two Shrub Species. M.S. Thesis. Utah State University. Logan.

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Map Unit	Potential Salvageable Soil Layer (inches)	Depth of Fine Roots* (inches)	Subsurface Rock Within Soil Salvage Layer (percent)
SBG	48	48	10 to 65
VBJ	30	18	5 to 65
XBS	12	12	25 to 40
DSH	40	26	<5 to 45
RBL	8	not listed	30
RBT	6	6	35

\*Only those soils having fine roots described with a frequency of "many" or "common" were included

The soils have a sandy loam texture, which correlates to an available water holding capacity (AWC) of 0.10 - .13 according to the Soil Conservation Service.<sup>3</sup> Laboratory measurement of the AWC agrees with this approximation as most of the soils were rated good before adjusting for coarse fragment content (Appendix C of Appendix 2-3). By Division calculations, the rock fragment content at a depth of 18 - 48 inches averaged about 43 percent for the SBG, VBJ and DSH soils combined. Therefore, the reduction in AWC would be approximately 57 percent of that estimated by texture.<sup>4</sup> The good AWC value of 0.13 would fall into the fair range of 0.07.

The implications are that because rock content of the soil reduces the Available Water Holding Capacity, the soil must be suitable for plant growth for a depth of at least 48 inches for the roots to scavenge enough water during the hot summer months.

In the case of the SBG, VBJ and DSH soils, the salvage of 18 inches of topsoil will not include critical subsoils required for rooting depth. In accordance with R645-301-232.500, the Division finds that the B horizon and C horizons must be removed to a depth of 48 inches from the SBG and DSH soil map units and a depth of 30 inches from VBJ soils. The subsoils will be segregated, stockpiled, and redistributed as subsoil, because such subsoil layers are necessary to achieve the rooting depth necessary to comply with the revegetation requirements of R645-301-353 through R645-301-357. The Division will allow this subsoil material to be stored within the operations pad, as described in Section 232.100 where it will be protected by a surface of asphalt, concrete or gravel underlain by an impervious membrane (Section 232.500). Furthermore, contamination of this subsoil with shale will not be permitted (Section 232.100, and Section 232.500). Within the RBL and RBT soil areas, Mancos Shale is encountered within 6 - 8 inches. In no case will the Mancos Shale be salvaged with the overlying soils (Section 232.300 and 232.500). All practical precautions will be taken during design, construction, and reclamation to assure that shales or shale material will not be pushed on top of or mixed with un-salvaged subsoils (Section

Erickson, Austin J. 1973. Aids for Estimating Soil Properties Significant to Engineering Interpretations Utah -1973. USDA. Soil Conservation Service.

<sup>4</sup>  $AWC_{adj.} = AWC (1 - \% \text{ coarse fragment})$ .

232.100, and Section 232.500).

The Division recommends that a qualified soil scientist be on site during any pad construction and reclamation. The Division also recommends that pedestals or other survey methods be utilized to ensure subsoil recovery from Soil Map Units SBJ, DSH, and VBJ during pad development (for comparison with the Salvageable Soils Map Appendix A-2) and that volumes and locations of the subsoils as they are stored in the pad be provided with As-Built drawings (Section 232.500).

#### *Adverse Conditions*

Section 232.710 says soil will not be removed from the area between the rock slope tunnels and the ROM stockpile due to rockiness and steep slopes. For the same reasons, disturbance will be minimal in this location, with only two bents planned to hold the conveyor. The Division agrees that leaving the soil on the rocky, steep slope is in accordance with R645-232.400.

Measures to protect the undisturbed soil will include:

- Jersey barriers along the perimeter of the ROM stockpile to prevent encroachment of coal onto the undisturbed ground (Section 232.710).
- Quarterly inspections of the undisturbed area (Section 234.220).
- Periodic cleaning of the undisturbed area soil, if the accumulation of coal fines exceeds one inch (Section 232.710 and 234.200).
- A covered conveyor and an enclosed crusher (Plate 5-8).

Additional measures could include a conveyor pan (Section 232.710).

Prevailing winds as reported in Section 724.412 are from west to east at a speed of 2.7 knots or 3.1 mph (knots x 1.1 = mph). Tom Ordh, meteorologist with the DEQ indicated that the open areas such as Castle Valley would have a wind speed of six miles per hour and canyon winds would be faster, perhaps ten miles per hour.<sup>5</sup> Mr. Ordh indicated that the prevailing winds along the canyon would flow off the plateau. Down in the canyon the wind would be terrain driven. Ordinarily, the winds are upslope in the morning and downslope in the afternoon.

#### **Topsoil Substitutes and Supplements**

Sections 224, 231.200, 232.720, 233, and 233.100 thru 233.400 state that no topsoil borrow or substitute topsoil is needed.

#### *Refuse Pile*

Plates 5-2 and 7-5 show rock storage areas north of the refuse storage area. As discussed in Section

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<sup>5</sup> Telephone conversation on 5/17/01 between Priscilla Burton (DOGM) and Tom Ordh, meteorologist, Division of Air Quality, Department of Environmental Quality.

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232.100 of the application, boulders collected during topsoil salvage may be stockpiled in these locations. These boulder storage sites are not refuse disposal sites.

The Permittee uses the term refuse disposal area in many sections of the MRP and the Division considers that term to mean a refuse pile. MSHA does not consider the refuse disposal areas to be refuse piles. However, the Division considers the area where underground coal development waste will be disposed of as a refuse pile because of the following R645-100-200 definitions:

- Underground development waste means waste-rock mixtures of coal, shale, claystone, siltstone, sandstone, limestone, or related materials that are excavated, moved, and disposed of from underground workings in connection with underground coal mining and reclamation activities.
- Refuse pile means a surface deposit of coal mine waste that does not impound water, slurry, or other liquid or semiliquid material.

There is a 3.28 acre refuse disposal area within the mine facilities perimeter, which is designated to hold both rock slope waste and refuse. The portion of the disposal site reserved for refuse is shown on Figure 1, Appendix 5-7 in the DSH soil mapping unit. The Available Soil Resources table in Section 232.100 indicates the potential salvage depth in this unit is 40 inches. According to the plan for the refuse pile, 18 inches of soil would be salvaged from the entire refuse pile area, and an additional 30 inches of subsoil would be moved to the side to facilitate burial of the refuse. Subsoils should not be excavated below 48 inches in the DSH soil mapping unit, as there are restrictions to salvage due to high rock contents and salt levels. For this reason, Section 232.500 indicates that pedestals will be utilized during construction to verify soil removal depths.

### **Topsoil Storage**

The topsoil stockpile will be located and protected to avoid contamination and unacceptable compaction. The plan further states that the stockpile surface will be left rough and irregular to increase moisture retention during rainfall and snow melt. Seeding will be done following topsoil placement and after September 15. A silt fence or berm/ditch configuration will be used at the perimeter of the pile to protect against soil loss from water erosion.

Topsoil storage is addressed in several locations in the MRP: Section 231.100 (soil removal); Section 231.400 (pile construction); Section 232.100 and Figure 1 Appendix 5-7 (pile dimensions and storage capacity); Plate 5-2 (location and cross sections); Section 234.230 (mulching and seeding); Table 3-4/3.5 Interim and Final Reclamation Seed Mix (stockpile seed mix).

Topsoil will be salvaged from fan portal disturbance after the break out occurs. This topsoil will be placed downslope of the fan site in a berm around the site (Section 232.700 and Plate 5-2). This topsoil berm will receive the same protection afforded other topsoil stored on the site. A sign will be posted identifying the berm as topsoil. It will be seeded and protected from erosion. A silt fence will be utilized to prevent the topsoil from leaving the site.

**Findings:**

Information provided in the application is considered adequate to meet the minimum operational topsoil and subsoil requirements of the regulations.

**VEGETATION**

Regulatory Reference: R645-301-330, -301-331, -301-332.

**Minimum Regulatory Requirements:**

Each application will contain a plan for protection of vegetation, fish, and wildlife resources throughout the life of the mine. The plan will provide a description of the measures taken to disturb the smallest practicable area at any one time and through prompt establishment and maintenance of vegetation for interim stabilization of disturbed areas to minimize surface erosion. This may include part or all of the plan for final revegetation as described in reclamation plan for revegetation.

For UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES a description of the anticipated impacts of subsidence on renewable resource lands and how such impact will be mitigated needs to be presented.

**Analysis:**

All incidental disturbances that will not be used as part of the operations will be revegetated with an interim seed mix. Tables 3.4/3.5 presents a seed mix that would be used for both interim and final revegetation. The species in the seed mix should provide adequate erosion protection for both interim and final reclamation.

Section 331 of the application refers to the revegetation plan in Section 340 for further information about revegetation methods. The details of this plan are discussed in the revegetation section of this TA.

The impacts of subsidence are addressed in the section of this TA dealing with subsidence. The Permittee has included a plan to monitor the effects of subsidence on vegetation through color infrared photography every five years.

**Findings:**

The information provided by the Permittee meets the minimum Vegetation requirements of the regulations.

**ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

**Minimum Regulatory Requirements:**

**Road classification system**

Each road shall be classified as either a primary road or an ancillary road. A primary road is any road which is: used for transporting coal or spoil; frequently used for access or other purposes for a period in excess of six months; or, to be retained for an approved postmining



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land use. An ancillary road is any road not classified as a primary road.

### Plans and drawings

Each applicant for an underground coal mining and reclamation permit shall submit plans and drawings for each road to be constructed, used, or maintained within the proposed permit area. To ensure environmental protection appropriate for their planned duration and use, including consideration of the type and size of equipment used, the design and construction or reconstruction of roads shall incorporate appropriate limits for grade, width, surface materials, surface drainage control, culvert placement, and culvert size, in accordance with current, prudent engineering practices, and any necessary design criteria established by the Division. The plans and drawings shall:

- 1.) Include a map, appropriate cross sections, design drawings, and specifications for road widths, gradients, surfacing materials, cuts, fill embankments, culverts, bridges, drainage ditches, low-water crossings, and drainage structures;
- 2.) Contain the drawings and specifications of each proposed road that is located in the channel of an intermittent or perennial stream, as necessary for approval of the road by the Division;
- 3.) Contain the drawings and specifications for each proposed ford of perennial or intermittent streams that is used as a temporary route, as necessary for approval of the ford by the Division;
- 4.) Contain a description of measures to be taken to obtain approval of the Division for alteration or relocation of a natural stream channel;
- 5.) Contain the drawings and specifications for each low-water crossing of perennial or intermittent stream channels so that the Division can maximize the protection of the stream; and,
- 6.) Describe the plans to remove and reclaim each road that would not be retained under an approved postmining land use, and the schedule for this removal and reclamation.

### Performance standards

All roads shall be located, designed, constructed, reconstructed, used, maintained, and reclaimed so as to:

- 1.) Control or prevent erosion, siltation, and the air pollution attendant to erosion, including road dust and dust occurring on other exposed surfaces, by measures such as vegetating, watering, using chemical or other dust suppressants, or otherwise stabilizing all exposed surfaces in accordance with current, prudent engineering practices;
- 2.) Control or prevent damage to fish, wildlife, or other habitat and related environmental values;
- 3.) Control or prevent additional contributions of suspended solids to streamflow or runoff outside the permit area;
- 4.) Neither cause nor contribute to, directly or indirectly, the violation of State or Federal water quality standard applicable to receiving waters;
- 5.) Refrain from seriously altering the normal flow of water in streambeds or drainage channels;
- 6.) Not locate any road in the channel of an intermittent or perennial stream unless specifically approved by the Division. Roads shall be located to minimize downstream sedimentation and flooding;
- 7.) Prevent or control damage to public or private property, including the prevention or mitigation of adverse effects on lands within the boundaries of units of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System, including designated study rivers, and National Recreation Areas designated by Act of Congress;
- 8.) Use nonacid- and nontoxic-forming substances in road surfacing; and,
- 9.) Maintain all roads to meet the performance standards of this part and any additional criteria specified by the Division. A road damaged by a catastrophic event, such as a flood or earthquake, shall be repaired as soon as is practicable after the damage has occurred.

In addition to the above, primary roads shall meet the following requirements:

- 1.) The construction or reconstruction of primary roads shall be certified in a report to the Division by a qualified registered professional engineer, or in any State which authorizes land surveyors to certify the construction or reconstruction of primary roads, a qualified registered professional land surveyor, with experience in the design and construction of roads. The report shall indicate that the primary road has been constructed or reconstructed as designed and in accordance with the approved plan;
- 2.) Each primary road embankment shall have a minimum static factor of 1.3. The Division may establish engineering design standards for primary roads through the State program approval process, in lieu of engineering tests, to establish compliance with the minimum static safety factor of 1.3 for all embankments;
- 3.) Primary roads shall be located to minimize erosion, insofar as is practicable, on the most stable available surface;
- 4.) Fords of perennial or intermittent streams by primary roads are prohibited unless they are specifically approved by the Division as temporary routes during periods of road construction.
- 5.) Each primary road shall be constructed or reconstructed, and maintained to have adequate drainage control, using structures such as, but not limited to bridges, ditches, cross drains, and ditch relief drains. The drainage control system shall be designed to safely pass the peak runoff from a 10-year, 6-hour precipitation event, or greater event as specified by the Division. Drainage pipes and culverts shall be installed as designed, and maintained in a free and operating condition and to prevent or control erosion at inlets and outlets. Drainage ditches shall be constructed and maintained to prevent uncontrolled drainage over the road surface and embankment. Culverts shall be installed and maintained to sustain the vertical soil pressure, the passive resistance of the foundation, and the weight of vehicles using the road. Natural stream channels shall not be altered or relocated without the prior approval of the Division. Except as

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specifically approved by the Division, structures for perennial or intermittent stream channel crossings shall be made using bridges, culverts, low-water crossings, or other structures designed, constructed, and maintained using current, prudent engineering practices. The Division shall ensure that low-water crossings are designed, constructed, and maintained to prevent erosion of the structure or streambed and additional contributions of suspended solids to streamflow.

6.) Primary roads shall be surfaced with material approved by the Division as being sufficiently durable for the anticipated volume of traffic and the weight and speed of vehicles using the road.

### Primary road certification

The plans and drawings for each primary road shall be prepared by, or under the direction of, and certified by a qualified registered professional engineer, or in any State which authorizes land surveyors to certify the design of primary roads a qualified registered professional land surveyor, experienced in the design and construction of roads, as meeting the requirements of this chapter; current, prudent engineering practices; and any design criteria established by the Division.

### Other Transportation Facilities

The plan must include a detailed description of each road, conveyor, and rail system to be constructed, used, or maintained within the proposed permit area. The description will include a map, appropriate cross sections, and the following: specifications for each road width, road gradient, road surface, road cut, fill embankment, culvert, bridge, drainage ditch, and drainage structure; measures to be taken to obtain Division approval for alteration or relocation of a natural drainageway; a maintenance plan describing how roads will be maintained throughout their life to meet the design standards throughout their use; a commitment that if a road is damaged by a catastrophic event, such as a flood or earthquake, the road will be repaired as soon as practical after the damage has occurred; a report of appropriate geotechnical analysis, where approval of the Division is required for alternative specifications, or for steep cut slopes.

## Analysis:

### Road Systems

#### *Road Classification System*

All roads to be constructed, used and maintained by the Permittee are within the Lila Canyon disturbed area and are shown on Plate 5-2. All of the roads in the disturbed area are classified as primary roads. No ancillary roads are associated with the Lila Canyon project. The information about road classification systems meets the minimum requirements of this subsection.

#### *Plans and Drawings*

- In Section 527.200 of the amendment, the Permittee states that detailed designs and descriptions for each road within the disturbed area are included in Appendix 5-4 and all roads are shown on Plate 5-2. The road embankment stability analysis is in Appendix 5-5.

Appendix 5-5 has information about slope stability for the roads. The Permittee states that a slope stability analysis was done for the road embankment and road cut slope. The stability analysis done in Appendix 5-5 shows that the road embankment will have a safety factor of 2.48 under dry conditions and 1.58 for saturated conditions. The road cut slopes will have a safety factor of 1.85 under dry conditions and 1.31 under saturated conditions. The minimum safety factor required for those slopes is 1.30. Thus, the slopes meet or exceed the safety factors of the Utah Coal Rules.

Additional stability analysis was done by the Permittee using STABLE, a slope stability program. The Permittee analyzed several road embankment and cut-slope configurations in the disturbed area. Each cut slope exceeded the minimum safety factor requirement of 1.3.

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Primary roads (Fig. 1, Appendix 5-4) are 16 feet wide with a 1 percent slope that drains to a ditch. Roads will have a 6 -inch gravel surface and guard rails. All roads are within the existing facilities pad area and will use the sediment controls in place for the facilities area.

- The Permittee does not propose to locate a road in the channel of an intermittent or perennial stream, or locate a temporary ford in the channel of an intermittent or perennial stream, or install a low-water crossing of a perennial or intermittent stream channel.
- The Permittee does propose to construct temporary culvert UC-1 in an ephemeral channel to accommodate a truck turn-around. Designs are discussed in the hydrology section of this TA. The culvert will be removed during reclamation.
- The Permittee states in Section 542.600 that there will be no roads left after final reclamation within the mine disturbed area. All roads will be reclaimed upon cessation of mining.

### Performance Standards

The Permittee will be responsible to insure that the roads meet the performance standards.

### Primary Road Certification

The road plans and cross-sections in Appendix 5-5 and Plate 5-2 were certified by a registered professional engineer.

### Other Transportation Facilities

The general plans for the conveyor system are given in the text and shown on the surface facilities maps.

### Findings:

The information provided by the Permittee meets the minimum Road Systems and Other Transportation Facilities requirements of the regulations.

## SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Minimum Regulatory Requirements:

Disposal of noncoal mine wastes

Noncoal mine wastes including, but not limited to, grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber, and other combustible materials generated during mining activities shall be placed and stored in a controlled manner in a designated portion of the permit area. Placement and storage shall ensure that leachate and surface runoff do not degrade surface or ground water, that fires are prevented, and that the area remains stable and suitable for reclamation and revegetation compatible with the natural surroundings.

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Final disposal of noncoal mine wastes shall be in a designated disposal site in the permit area or a State-approved solid waste disposal area. Disposal sites in the permit area shall be designed and constructed to ensure that leachate and drainage from the noncoal mine waste area does not degrade surface or underground water. Wastes shall be routinely compacted and covered to prevent combustion and windborne waste. When the disposal is completed, a minimum of 2 feet of soil cover shall be placed over the site, slopes stabilized, and revegetated. Operation of the disposal site shall be conducted in accordance with all local, State, and Federal requirements.

At no time shall any noncoal mine waste be deposited in a refuse pile or impounding structure, nor shall any excavation for a noncoal mine waste disposal site be located within 8 feet of any coal outcrop or coal storage area.

Any noncoal mine waste defined as "hazardous" under Section 3001 of the Resource Conservation and Recovery Act (RCRA) (Pub. L. 94-580, as amended) and 40 CFR Part 261 shall be handled in accordance with the requirements of Subtitle C of RCRA and any implementing regulations.

### Coal mine waste

Each plan shall contain descriptions, including appropriate maps and cross-section drawings of the proposed disposal methods and sites for placing underground development waste and excess spoil generated at surface areas affected by surface operations and facilities. Each plan shall describe the geotechnical investigation, design, construction, operation, maintenance, and removal, if appropriate, of the structures.

All coal mine waste shall be placed in new or existing disposal areas within a permit area that are approved by the Division for this purpose. Coal mine waste shall be placed in a controlled manner to:

- 1.) Minimize adverse effects of leachate and surface-water runoff on surface- and ground-water quality and quantity;
- 2.) Ensure mass stability and prevent mass movement during and after construction;
- 3.) Ensure that the final disposal facility is suitable for reclamation and revegetation compatible with the natural surroundings and the approved postmining land use;
- 4.) Not create a public hazard; and
- 5.) Prevent combustion.

Coal mine waste materials from activities located outside a permit area may be disposed of in the permit area only if approved by the Division. Approval shall be based upon a showing that such disposal will be in accordance with the standards of this section.

The disposal facility shall be designed using current, prudent engineering practices and shall meet any design criteria established by the Division. A qualified registered professional engineer, experienced in the design of similar earth and waste structures, shall certify the design of the disposal facility. The disposal facility shall be designed to attain a minimum long-term static safety factor of 1.5. The foundation and abutments must be stable under all conditions of construction. Sufficient foundation investigations, as well as any necessary laboratory testing of foundation material, shall be performed in order to determine the design requirements for foundation stability. The analyses of the foundation conditions shall take into consideration the effect of underground mine workings, if any, upon the stability of the disposal facility.

If any examination or inspection discloses that a potential hazard exists, the Division shall be informed promptly of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented the Division shall be notified immediately. The Division shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

### Refuse piles

Refuse piles shall meet the requirements of coal mine waste, the additional requirements provided below and the requirements of 30 CFR Sections 77.214 and 77.215.

If the disposal area contains springs, natural or manmade water courses, or wet-weather seeps, the design shall include diversions and underdrains as necessary to control erosion, prevent water infiltration into the disposal facility, and ensure stability. Uncontrolled surface drainage may not be diverted over the outslope of the refuse pile. Runoff from areas above the refuse pile and runoff from the surface of the refuse pile shall be diverted into stabilized diversion channels designed to safely pass the runoff from a 100-year, 6-hour precipitation event. Runoff diverted from undisturbed areas need not be commingled with runoff from the surface of the refuse pile.

Underdrains shall comply with the general requirements for the disposal of excess spoil.

Slope protection shall be provided to minimize surface erosion at the site. All disturbed areas, including diversion channels that are not riprapped or otherwise protected, shall be revegetated upon completion of construction.

All vegetative and organic materials shall be removed from the disposal area prior to placement of coal mine waste. Topsoil shall be removed, segregated and stored or redistributed. If approved by the Division, organic material may be used as mulch or may be included in the topsoil to control erosion, promote growth of vegetation, or increase the moisture retention of the soil.

The final configuration of the refuse pile shall be suitable for the approved postmining land use. Terraces may be constructed on the outslope of the refuse pile if required for stability, control of erosion, conservation of soil moisture, or facilitation of the approved postmining land use. The grade of the outslope between terrace benches shall not be steeper than 2h:1v (50 percent).

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No permanent impoundments shall be allowed on the completed refuse pile. Small depressions may be allowed by the Division if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation, and if they are not incompatible with the stability of the refuse pile.

Following final grading of the refuse pile, the coal mine waste shall be covered with a minimum of 4 feet of the best available, nontoxic and noncombustible material, in a manner that does not impede drainage from the underdrains. The Division may allow less than 4 feet of cover material based on physical and chemical analyses which show that the revegetation requirements will be met.

A qualified registered professional engineer, or other qualified professional specialist under the direction of the professional engineer, shall inspect the refuse pile during construction. The professional engineer or specialist shall be experienced in the construction of similar earth and waste structures. Such inspection shall be made at least quarterly throughout construction and during critical construction periods. Critical construction periods shall include, at a minimum: Foundation preparation including the removal of all organic material and topsoil; Placement of underdrains and protective filter systems; Installation of final surface drainage systems; and, The final graded and revegetated facility. Regular inspections by the engineer or specialist shall also be conducted during placement and compaction of coal mine waste materials. More frequent inspections shall be conducted if a danger of harm exists to the public health and safety or the environment. Inspections shall continue until the refuse pile has been finally graded and revegetated or until a later time as required by the Division.

The qualified registered professional engineer shall provide a certified report to the Division promptly after each inspection that the refuse pile has been constructed and maintained as designed and in accordance with the approved plan and this Chapter. The report shall include appearances of instability, structural weakness, and other hazardous conditions. The certified report on the drainage system and protective filters shall include color photographs taken during and after construction, but before underdrains are covered with coal mine waste. If the underdrain system is constructed in phases, each phase shall be certified separately. The photographs accompanying each certified report shall be taken in adequate size and number with enough terrain or other physical features of the site shown to provide a relative scale to the photographs and to specifically and clearly identify the site. A copy of each inspection report shall be retained at or near the minesite.

### Impounding structures

New and existing impounding structures constructed of coal mine waste or intended to impound coal mine waste shall meet the requirements for coal mine waste.

Coal mine waste shall not be used for construction of impounding structures unless it has been demonstrated to the Division that the stability of such a structure conforms to the requirements of this part and that the use of coal mine waste will not have a detrimental effect on downstream water quality or the environment due to acid seepage through the impounding structure. The stability of the structure and the potential impact of acid mine seepage through the impounding structure shall be discussed in detail in the design plan submitted to the Division.

Each impounding structure constructed of coal mine waste or intended to impound coal mine waste shall be designed, constructed, and maintained in accordance with the requirements for temporary impoundments. Such structures may not be retained permanently as part of the approved postmining land use.

Each impounding structure constructed of coal mine waste or intended to impound coal mine waste that meets the criteria of 30 CFR Sec. 77.216(a) shall have sufficient spillway capacity to safely pass, adequate storage capacity to safely contain, or a combination of storage capacity and spillway capacity to safely control, the probable maximum precipitation of a 6-hour precipitation event, or greater event as specified by the Division. Spillways and outlet works shall be designed to provide adequate protection against erosion and corrosion. Inlets shall be protected against blockage.

Runoff from areas above the disposal facility or runoff from the surface of the facility that may cause instability or erosion of the impounding structure shall be diverted into a stabilized diversion channels designed to safely pass the runoff from a 100-year, 6-hour design precipitation event.

Impounding structures constructed of or impounding coal mine waste shall be designed and function so that at least 90 percent of the water stored during the design precipitation event can be removed within a 10-day period.

### Burning and burned waste utilization

Coal mine waste fires shall be extinguished by the person who conducts the surface mining activities, in accordance with a plan approved by the Division and the Mine Safety and Health Administration. The plan shall contain, at a minimum, provisions to ensure that only those persons authorized by the operator, and who have an understanding of the procedures to be used, shall be involved in the extinguishing operations. No burning or unburned coal mine waste shall be removed from a permitted disposal area without a removal plan approved by the Division. Consideration shall be given to potential hazards to persons working or living in the vicinity of the structure.

### Return of coal processing waste to abandoned underground workings

Each plan shall describe the design, operation and maintenance of any proposed coal processing waste disposal facility, including flow diagrams and any other necessary drawings and maps, for the approval of the Division and the Mine Safety and Health Administration.

Each plan shall describe the source and quality of waste to be stowed, area to be backfilled, percent of the mine void to be filled, method of constructing underground retaining walls, influence of the backfilling operation on active underground mine operations, surface area to be supported by the backfill, and the anticipated occurrence of surface effects following backfilling.

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The applicant shall describe the source of the hydraulic transport mediums, method of dewatering the placed backfill, retainment of water underground, treatment of water if released to surface streams, and the effect on the hydrologic regime.

The plan shall describe each permanent monitoring well to be located in the backfilled area, the stratum underlying the mined coal, and gradient from the backfilled area.

The requirements of this section shall also apply to pneumatic backfilling operations, except where the operations are exempted by the Division from requirements specifying hydrologic monitoring.

### Excess Spoil: General Requirements

Excess spoil shall be placed in designated disposal areas within the permit area, in a controlled manner to: minimize the adverse effects of leachate and surfacewater runoff from the fill on surface and ground waters; ensure mass stability and prevent mass movement during and after construction; and, ensure that the final fill is suitable for reclamation and revegetation compatible with the natural surroundings and the approved postmining land use.

The fill and appurtenant structures shall be designed using current, prudent engineering practices and shall meet any design criteria established by the Division. A qualified registered professional engineer experienced in the design of earth and rock fills shall certify the design of the fill and appurtenant structures. The fill shall be designed to attain a minimum long-term static safety factor of 1.5. The foundation and abutments of the fill must be stable under all conditions of construction.

The disposal area shall be located on the most moderately sloping and naturally stable areas available, as approved by the Division, and shall be placed, where possible, upon or above a natural terrace, bench, or berm, if such placement provides additional stability and prevents mass movement.

Sufficient foundation investigations, as well as any necessary laboratory testing of foundation material, shall be performed in order to determine the design requirements for foundation stability. The analyses of foundation conditions shall take into consideration the effect of underground mine workings, if any, upon the stability of the fill and appurtenant structures. When the slope in the disposal area is in excess of 2.8h:1v (36 percent), or such lesser slope as may be designated by the Division based on local conditions, keyway cuts (excavations to stable bedrock) or rock toe buttresses shall be constructed to ensure stability of the fill. Where the toe of the spoil rests on a downslope, stability analyses shall be performed to determine the size of rock toe buttresses and keyway cuts.

All vegetative and organic materials shall be removed from the disposal area prior to placement of excess spoil. Topsoil shall be removed, segregated and stored and redistributed in accordance with the requirements for topsoil handling. If approved by the Division, organic material may be used as mulch or may be included in the topsoil to control erosion, promote growth of vegetation, or increase the moisture retention of the soil.

Excess spoil shall be transported and placed in a controlled manner in horizontal lifts not exceeding 4 feet in thickness; concurrently compacted as necessary to ensure mass stability and to prevent mass movement during and after construction; graded so that surface and subsurface drainage is compatible with the natural surroundings; and covered with topsoil or substitute material. The Division may approve a design which incorporates placement of excess spoil in horizontal lifts other than 4 feet in thickness when it is demonstrated by the operator and certified by a qualified registered professional engineer that the design will ensure the stability of the fill and will meet all other applicable requirements.

The final configuration of the fill shall be suitable for the approved postmining land use. Terraces may be constructed on the outslope of the fill if required for stability, control of erosion, to conserve soil moisture, or to facilitate the approved postmining land use. The grade of the outslope between terrace benches shall not be steeper than 2h:1v (50 percent).

No permanent impoundments are allowed on the completed fill. Small depressions may be allowed by the Division if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation; and if they are not incompatible with the stability of the fill.

Excess spoil that is acid- or toxic-forming or combustible shall be adequately covered with nonacid, nontoxic and noncombustible material, or treated, to control the impact on surface and ground water, to prevent sustained combustion, and to minimize adverse effects on plant growth and the approved postmining land use.

If the disposal area contains springs, natural or manmade water courses, or wet weather seeps, the fill design shall include diversions and underdrains as necessary to control erosion, prevent water infiltration into the fill, and ensure stability. Underdrains shall consist of durable rock or pipe, be designed and constructed using current, prudent engineering practices and meet any design criteria established by the Division. The underdrain system shall be designed to carry the anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area and shall be protected from piping and contamination by an adequate filter. Rock underdrains shall be constructed of durable, nonacid-, nontoxic-forming rock (e.g., natural sand and gravel, sandstone, limestone, or other durable rock) that does not slake in water or degrade to soil materials, and which is free of coal, clay, or other nondurable material. Perforated pipe underdrains shall be corrosion resistant and shall have characteristics consistent with the long-term life of the fill.

Slope protection shall be provided to minimize surface erosion at the site. All distributed areas, including diversion channels that are not riprapped or otherwise protected, shall be revegetated upon completion of construction.

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A qualified registered professional engineer or other qualified professional specialist under the direction of the professional engineer, shall periodically inspect the fill during construction. The professional engineer or specialist shall be experienced in the construction of earth and rock fills. Such inspections shall be made at least quarterly throughout construction and during critical construction periods. Critical construction periods shall include at a minimum: foundation preparation, including the removal of all organic material and topsoil; placement of underdrains and protective filter systems; installation of final surface drainage systems; and, the final graded and revegetated fill. Regular inspections by the engineer or specialist shall also be conducted during placement and compaction of fill materials. The qualified registered professional engineer shall provide a certified report to the Division promptly after each inspection that the fill has been constructed and maintained as designed and in accordance with the regulatory requirements. The report shall include appearances of instability, structural weakness, and other hazardous conditions. The certified report on the drainage system and protective filters shall include color photographs taken during and after construction, but before underdrains are covered with excess spoil. If the underdrain system is constructed in phases, each phase shall be certified separately. Where excess durable rock spoil is placed in single or multiple lifts such that the underdrain system is constructed simultaneously with excess spoil placement by the natural segregation of dumped materials, color photographs shall be taken of the underdrain as the underdrain system is being formed. The photographs accompanying each certified report shall be taken in adequate size and number with enough terrain or other physical features of the site shown to provide a relative scale to the photographs and to specifically and clearly identify the site. A copy of each inspection report shall be retained at or near the mine site.

Coal mines waste may be disposed of in excess spoil fills if approved by the Division and, if such waste is: placed in accordance with the requirements for refuse piles; nontoxic and nonacid forming; and, of the proper characteristics to be consistent with the design stability of the fill.

Spoil resulting from face-up operations for underground coal mine development may be placed at drift entries as part of a cut-and-fill structure, if the structure is less than 400 feet in horizontal length and designed in accordance with the general requirements for the disposal of excess spoil.

### Excess Spoil: Valley fills/head-of-hollow fills

Valley fills and head-of-hollow fills shall meet the general requirements for excess spoil and the following additional requirements.

The top surface of the completed fill shall be graded such that the final slope after settlement will be toward properly designed drainage channels. Uncontrolled surface drainage may not be directed over the outslope of the fill. Runoff from areas above the fill and runoff from the surface of the fill shall be diverted into stabilized diversion channels and to safely pass the runoff from a 100-year, 6-hour precipitation event.

A rock-core chimney drain may be used in a head-of-hollow fill, instead of the underdrain and surface diversion system normally required, as long as the fill is not located in an area containing intermittent or perennial streams. A rock-core chimney drain may be used in a valley fill if the fill does not exceed 250,000 cubic yards of material and upstream drainage is diverted around the fill. The alternative rock-core chimney drain system shall be incorporated into the design and construction of the fill as follows:

- 1.) The fill shall have, along the vertical projection of the main buried stream channel or rill, a vertical core of the durable rock at least 16 feet thick which shall extend from the toe of the fill to the head of the fill and from the base of the fill to the surface of the fill. A system of lateral rock underdrains shall connect this rock core to each area of potential drainage or seepage in the disposal area. The underdrain system and rock core shall be designed to carry the anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area.
- 2.) A filter system to ensure the proper long-term functioning of the rock core shall be designed and constructed using current, prudent engineering practices.
- 3.) Grading may drain surface water away from the outslope of the fill and toward the rock core. In no case, however, may intermittent or perennial streams be diverted into the rock core. The maximum slope of the top of the fill shall be 33h:1v (3 percent). A drainage pocket may be maintained at the head of the fill during and after construction, to intercept surface runoff and discharge the runoff through or over the rock drain, if stability of the fill is not impaired. In no case shall this pocket or sump have a potential capacity for impounding more than 10,000 cubic feet of water. Terraces on the fill shall be graded with a 3- to 5-percent grade toward the fill and a 1-percent slope toward the rock core.

### Excess Spoil: Durable rock fills

The Division may approve the alternative method of disposal of excess durable rock spoil by gravity placement in single or multiple lifts, provided the following conditions are met: durable rock fills shall meet the general requirements for excess spoil except as provided in this section; the excess spoil consists of at least 80 percent, by volume, durable, nonacid- and nontoxic-forming rock (e.g., sandstone or limestone) that does not slake in water and will not degrade to soil material. Where used, noncemented clay shale, clay spoil, soil, or other nondurable excess spoil material shall be mixed with excess durable rock spoil in a controlled manner such that no more than 20 percent of the fill volume, as determined by tests performed by a registered engineer and approved by the Division, is not durable rock; a qualified registered professional engineer certifies that the design will ensure the stability of the fill and meet all other applicable requirements; the fill is designed to attain a minimum long-term static safety factor of 1.5, and an earthquake safety factor of 1.1; the underdrain system may be constructed simultaneously with excess spoil placement by the natural segregation of dumped materials, provided the resulting underdrain system is capable of carrying anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area and the other requirements for drainage control are met; and, surface-water runoff from areas adjacent to and above the fill is not allowed to flow onto the fill and is diverted into stabilized diversion channels designed to safely pass the runoff from a 100-year, 6-hour precipitation event.

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### **Excess Spoil: Preexisting benches**

The Division may approve the disposal of excess spoil through placement on preexisting benches, provided that the general requirements for excess spoil and the requirements of this section are met.

Excess spoil shall be placed only on the solid portion of the preexisting bench. The fill shall be designed, using current, prudent engineering practices, to attain a long-term static safety factor of 1.3 for all portions of the fill. The preexisting bench shall be backfilled and graded to achieve the most moderate slope possible which does not exceed the angle of repose, and eliminate the highwall to the maximum extent technically practical.

Disposal of excess spoil from an upper actively mined bench to a lower preexisting bench by means of gravity transport may be approved by the Division provided that: the gravity transport courses are determined on a site-specific basis by the operator as part of the permit application and approved by the Division to minimize hazards to health and safety and to ensure that damage will be minimized between the benches, outside the set course, and downslope of the lower bench should excess spoil accidentally move; all gravity-transported excess spoil, including that excess spoil immediately below the gravity transport courses and any preexisting spoil that is disturbed, is rehandled and placed in horizontal lifts in a controlled manner, concurrently compacted as necessary to ensure mass stability and to prevent mass movement, and graded to allow surface and subsurface drainage to be compatible with the natural surroundings and to ensure a minimum long-term static safety factor of 1.3. Excess spoil on the bench prior to the current mining operation that is not disturbed need not be rehandled except where necessary to ensure stability of the fill; a safety berm is constructed on the solid portion of the lower bench prior to gravity transport of the excess spoil. Where there is insufficient material on the lower bench to construct a safety berm, only that amount of excess spoil necessary for the construction of the berm may be gravity transported to the lower bench prior to construction of the berm; and, excess spoil shall not be allowed on the downslope below the upper bench except on designated gravity-transport courses properly prepared by removing topsoil. Upon completion of the fill, no excess spoil shall be allowed to remain on the designated gravity-transport course between the two benches and each transport course shall be reclaimed.

### **Analysis:**

#### **Disposal of Noncoal Mine Waste**

The Permittee on Plate 5-2 showed the location where noncoal waste would be stored. In Section 528.332 the Permittee states that final disposal of noncoal mine wastes except for concrete debris will be at the East Carbon Development Corporation (ECDC) facility near East Carbon City. Plate 5-6 show that the concrete will be disposed of in the coal storage area.

The Division will allow the Permittee to dispose of concrete debris on site. The on site disposal of concrete will be done by placing the concrete in areas that will be backfilled and graded. As shown on Plate 5-6, the Permittee will cover the concrete debris with enough material to allow for proper vegetation growth.

The Permittee committed in Section 528.224 of the application to handle and dispose of all hazardous waste in accordance with Resource Conservation and Recovery Act (RCRA) requirements. ECDC is licensed by the State to dispose of hazardous and nonhazardous waste.

#### **Coal Mine Waste**

The Permittee states in Section 528.320 that coal mine waste will be placed in new disposal areas within the permit area. The Permittee will divide the refuse pile into two sections. The first section will contain rock removed from the access tunnels. The rock will be used as structural fill for the shop/warehouse. The second section will be used for coal mine processing waste and underground development waste that contains coal. The location of the refuse pile is shown on Plate 5-2 and in Appendix 5-7.



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R645-301-536.100 requires that refuse piles be designed using current, prudent engineering practices. In Appendix 5-7 the Permittee describes the placement of refuse as follows:

“Refuse will be dumped into the hole created from the removal of the subsoil. The refuse will be placed in the hole as per Figure 1. Once the hole is filled to the level shown in Figure 1, the subsoil will then be placed over the top of the refuse and another hole will be constructed by removing subsoil adjacent to the previous hole. The topsoil removal and storage, subsoil removal, the hole being filled with refuse, and subsoil replacement, procedure will be repeated as additional refuse disposal area is needed.”

Refuse will be placed in lifts and compacted during the filling operation. Upon final reclamation the topsoil will be redistributed over the refuse storage area and reclaimed as per Chapter 3. The total cover over the refuse area when considering the subsoil and topsoil will be a minimum of 4 feet. The compaction and four feet of subsoil and topsoil will minimize the effects of leachate and degradation of ground-water quality.

The coal mine waste disposal facility has a static safety factor of 16.19. The minimum static safety required is 1.5. The calculations were made at cross section 8+00.

After the site is backfilled, graded and topsoil is placed the area will be suitable for establishing vegetation and supporting the postmining land use. See the vegetation and postmining land use sections in the reclamation section of this TA for details. The reclaimed site will be stable and not cause a public hazard or be susceptible to combustion.

The Permittee does not propose to place coal mine waste material from other facilities in the coal mine waste disposal facility. If needed, the Permittee can request that the permit be amended.

The Permittee has committed to notify the Division in the event of a potential hazard at the coal mine waste disposal site. See the section of slide and other damage in this TA for details on how the Permittee will handle emergencies.

### Refuse Piles

The plan for the refuse pile is in Appendix 5-7, Refuse Piles, and Appendix 5-5, Slope Stability. No springs, water courses or wet weather seeps exist in the refuse piles area. The Permittee committed to remove all vegetation and topsoil during construction. The Permittee does not propose to use terraces for constructing the refuse pile. The pile will be reclaimed by placing 4 feet of material over the refuse. The Permittee committed to having the refuse pile inspected as required in the R645 rules.

Under the definitions in R645-100, the material generated in excavating the rock slopes is considered underground development waste (coal mine waste) that must be disposed of in a refuse pile. The rock in contact with the coal is characterized as fine-to-medium-grained sandstone in the southern portion of the permit area and carbonaceous mudstone and siltstone in the northern portion of the permit area and overlying the lower coal seam in the southern area (Section 6.5.5.1 of the MRP)

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In addition to the rock slope material, coal processing waste and other underground development waste (Section 6.6.3.2) will be disposed of in the refuse pile. Appendix 5-7 indicates that 25,000 CY of refuse will be generated. This refuse will be examined and tested as necessary (Section 536). Three samples will be taken of the initial rock slope development excavation. These samples will be analyzed according to Table 2 of Appendix 5-7. Testing of mining refuse will occur every 10,000 tons and follow the parameters in Table 2 of Appendix 5-7.

Figure 1 Appendix 5-7 differentiates between structural fill (rock slope waste) and refuse. The final burial location for both is approximately 3.28 acres<sup>1</sup>. As discussed above, approximately 25,000 cubic yards of rock slope waste will be stored in this location. The area designated for refuse is approximately two acres (300' x 300') and can hold 19,500 cubic yards.

The MRP plans for four feet of cover over the refuse pile (section 232.500 and Appendix 5-7.) The procedure for the creation of the structural fill is as follows:

1. Topsoil will be salvaged to a depth of 18 inches and stored in the stockpile.
2. The subsoil will be excavated an additional 30 inches and pushed to the side.
3. Refuse material will be placed in the excavated four foot pit created from the subsoil removal (Section 232.500 and Appendix 5-7).
4. Once the pit is filled, the subsoil will be placed over the top of the refuse.
5. A second pit will be excavated in the same manner adjacent to the previous pit.

The topsoil removal and storage, subsoil removal, refuse placement, and subsoil replacement procedures will be repeated, as additional refuse disposal is needed.

This process is shown in Figure 2, Appendix 5-7. From this figure, one can see that although the excavation is only 4 feet deep, refuse will be placed 15 to 19 feet deep and that refuse placement will actually exceed the initial surface elevation to create a mound which is level on its surface. Figure 2, Appendix 5-7 shows cross sections and a profile of the rock slope/refuse pile. The perimeter of the pile is graded at a 10h:1v slope into the surrounding terrain.

The reclaimed refuse pile will be compatible with the postmining land use, see the Postmining Land Use section of the TA for details. No impoundments will be constructed on top of the refuse pile. Terraces will not be constructed on the refuse pile. The Permittee is required to conduct inspections as outlined in R645-301-514.

#### Impounding Structures

The Permittee does not propose to construct any impoundments from coal mine waste.

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<sup>1</sup> As per telephone conversation between Priscilla Burton and Tom Paluso, Engineer with Environmental Industrial Services on 5/22/01, there are 1.35 acres designated for rock slope waste and 1.93 acres designated for refuse.

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### **Burning and Burned Waste Utilization**

The plan to extinguish coal mines fire is in Appendix 5-3.

### **Return of Coal Processing Waste to Abandoned Underground Workings**

The Permittee does not propose to dispose of coal mine waste underground.

### **Excess Spoil**

The Permittee does not anticipate that any excess spoil will be generated.

### **Findings:**

The Permittee met the minimum spoil and waste materials requirements of the regulations.

## **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### **Minimum Regulatory Requirements:**

#### **General**

All underground mining and reclamation activities shall be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and the performance standards of this part. The Division may require additional preventative, remedial, or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented. Mining and reclamation practices that minimize water pollution and changes in flow shall be used in preference to water treatment.

#### **Ground-water Monitoring**

In order to protect the hydrologic balance underground mining activities shall be conducted according to the hydrologic reclamation plan. Ground-water quality shall be protected by handling earth materials and runoff in a manner that minimizes acidic, toxic, or other harmful infiltration to ground-water systems and by managing excavations and other disturbances to prevent or control the discharge of pollutants into the ground water.

Ground-water monitoring shall be conducted according to the ground-water monitoring plan. The Division may require additional monitoring when necessary. Ground-water monitoring data shall be submitted every 3 months to the Division or more frequently as prescribed by the Division. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, the operator shall promptly notify the Division and immediately provide for any accelerated or additional monitoring necessary to determine the nature and extent of noncompliance and the results of the noncompliance. Plans and hydrologic information to evaluate and mitigate the noncompliance situation and information relevant to the PHC shall be submitted to the Division as required.

Ground-water monitoring shall proceed through mining and continue during reclamation until bond release. The Division may modify the monitoring requirements including the parameters covered and the sampling frequency if the operator demonstrates, using the monitoring data obtained, that: the operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; or, monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan.

Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of ground water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

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### Surface-water Monitoring

In order to protect the hydrologic balance, underground mining activities shall be conducted according to the approved plan, and the following: surface-water quality shall be protected by handling earth materials, ground-water discharges, and runoff in a manner that minimizes the formation of acidic or toxic drainage; prevents, to the extent possible using the best technology currently available, additional contribution of suspended solids to streamflow outside the permit area; and otherwise prevent water pollution. If drainage control, restabilization and revegetation of disturbed areas, diversion of runoff, mulching, or other reclamation and remedial practices are not adequate to meet water-quality standards and effluent limitations, the operator shall use and maintain the necessary water-treatment facilities or water-quality controls. Surface-water quantity and flow rates shall be protected by handling earth materials and runoff in accordance with the steps outlined in the approved plan.

Surface-water monitoring shall be conducted according to the approved surface-water monitoring plan. The Division may require additional monitoring when necessary. Surface-water monitoring data shall be submitted every 3 months to the Division or more frequently as prescribed by the Division. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any surface-water sample indicates noncompliance with the permit conditions, the operator shall promptly notify the Division and immediately provide for any accelerated or additional monitoring necessary to determine the nature and extent of noncompliance and the results of the noncompliance. Plans and hydrologic information to evaluate and mitigate the noncompliance situation and information relevant to the PHC shall be submitted to the Division as required. The reporting requirements of the water monitoring plan do not exempt the operator from meeting any National Pollutant Discharge Elimination System (NPDES) reporting requirements.

Surface-water monitoring shall proceed through mining and continue during reclamation until bond release. The Division may modify the monitoring requirements, except those required by the NPDES permitting authority, including the parameters covered and sampling frequency if the operator demonstrates, using the monitoring data obtained, that: the operation has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; and, monitoring is no longer necessary to achieve the purposes set forth in the approved monitoring plan.

Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of surface water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

### Acid- and toxic-forming materials and underground development waste

Drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water shall be avoided by: identifying and burying and/or treating, when necessary, materials which may adversely affect water quality, or be detrimental to vegetation or to public health and safety if not buried and/or treated; and, storing materials in a manner that will protect surface water and ground water by preventing erosion, the formation of polluted runoff, and the infiltration of polluted water.

### Discharges into an underground mine

Discharges into an underground mine are prohibited, unless specifically approved by the Division after a demonstration that the discharge will: minimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area and otherwise eliminate public hazards resulting from underground mining activities; not result in a violation of applicable water quality standards or effluent limitations; be at a known rate and quality which shall meet the effluent limitations for pH and total suspended solids, except that the pH and total suspended solids limitations may be exceeded, if approved by the Division; and, meet with the approval of the Mine Safety and Health Administration.

Discharges shall be limited to the following: water; coal-processing waste; fly ash from a coal-fired facility; sludge from an acid-mine-drainage treatment facility; flue-gas desulfurization sludge; inert materials used for stabilizing underground mines; and, underground mine development wastes.

Water from one underground mine may be diverted into other underground workings according to the requirements of this section.

### Gravity discharges from underground mines

Surface entries and accesses to underground workings shall be located and managed to prevent or control gravity discharge of water from the mine. The surface entries and accesses of drift mines first used after the implementation of a State, Federal, or Federal Lands Program and located in acid-producing or iron-producing coal seams shall be located in such a manner as to prevent any gravity discharge from the mine. Gravity discharges of water from an underground mine first used before the implementation of a State, Federal, or Federal Lands Program, may be allowed by the Division if it is demonstrated that the untreated or treated discharge complies with the performance standards and any additional NPDES permit requirements.

### Water-quality standards and effluent limitations

Compliance with all applicable State and Federal water quality laws and regulations and with the effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434.

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### Diversions: General

With the approval of the Division, any flow from mined areas abandoned before May 3, 1978, and any flow from undisturbed areas or reclaimed areas, after meeting the criteria for siltation structure removal, may be diverted from disturbed areas by means of temporary or permanent diversions. All diversions shall be designed to minimize adverse impacts to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area and to assure the safety of the public. Diversions shall not be used to divert water into underground mines without approval of the Division.

The diversion and its appurtenant structures shall be designed, located, constructed, and maintained to: be stable; provide protection against flooding and resultant damage to life and property; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and, comply with all applicable local, State, and Federal laws and regulations.

Temporary diversions shall be removed when no longer needed to achieve the purpose for which they were authorized. The land disturbed by the removal process shall be restored. Before diversions are removed, downstream water-treatment facilities previously protected by the diversion shall be modified or removed, as necessary, to prevent overtopping or failure of the facilities. This requirement shall not relieve the operator from maintaining water-treatment facilities as otherwise required.

A permanent diversion or a stream channel reclaimed after the removal of a temporary diversion shall be designed and constructed so as to restore or approximate the premining characteristics of the original stream channel including the natural riparian vegetation to promote the recovery and the enhancement of the aquatic habitat. The Division may specify additional design criteria for diversions.

### Diversions: Perennial and intermittent streams

Diversion of perennial and intermittent streams within the permit area may be approved by the Division after making the finding relating to stream buffer zones that the diversions will not adversely affect the water quantity and quality and related environmental resources of the stream. The design capacity of channels for temporary and permanent stream channel diversions shall be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream from the diversion. Protection against flooding and resultant damage to life and property shall be met when the temporary and permanent diversions for perennial and intermittent streams are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely the peak runoff of a 10-year, 6-hour precipitation event for a temporary diversion and a 100-year, 6-hour precipitation event for a permanent diversion. The design and construction of all stream channel diversions of perennial and intermittent streams shall be certified by a qualified registered professional engineer as meeting the performance standards and any design criteria set by the Division.

### Diversions: Miscellaneous flows

Diversion of miscellaneous flows, which consist of all flows except for perennial and intermittent streams, may be diverted away from disturbed areas if required or approved by the Division. Miscellaneous flows shall include ground-water discharges and ephemeral streams. The design, location, construction, maintenance, and removal of diversions of miscellaneous flows shall meet all of the general performance standards of this section. Protection against flooding and resultant damage to life and property shall be met when the temporary and permanent diversions for miscellaneous flows are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely the peak runoff of a 2-year, 6-hour precipitation event for a temporary diversion and a 10-year, 6-hour precipitation event for a permanent diversion.

### Stream buffer zones

No land within 100 feet of a perennial stream or an intermittent stream shall be disturbed by underground mining activities, unless the Division specifically authorizes underground mining activities closer to, or through, such a stream. The Division may authorize such activities only upon finding that: underground mining activities will not cause or contribute to the violation of applicable State or Federal water quality standards and will not adversely affect the water quantity and quality or other environmental resources of the stream; and, if there will be a temporary or permanent stream-channel diversion, it will comply with the regulatory requirements for diversions.

The area not to be disturbed shall be designated as a buffer zone, and the operator shall mark it accordingly with buffer zone markers.

### Sediment control measures

Appropriate sediment control measures shall be designed, constructed, and maintained using the best technology currently available to: prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area; meet the more stringent of applicable State or Federal effluent limitations; and, minimize erosion to the extent possible.

Sediment control measures include practices carried out within and adjacent to the disturbed area. The sedimentation storage capacity of practices in and downstream from the disturbed areas shall reflect the degree to which successful mining and reclamation techniques are applied to reduce erosion and control sediment. Sediment control measures consist of the utilization of proper mining and reclamation methods and sediment control practices, singly or in combination. Sediment control methods include but are not limited to: disturbing the smallest practicable area at any one time during the mining operation through progressive backfilling, grading, and prompt revegetation; stabilizing the backfilled material to promote a reduction of the rate and volume of runoff; retaining sediment within disturbed areas; diverting runoff away from disturbed areas; diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion; using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds, and other measures that reduce

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overland flow velocity, reduce runoff volume, or trap sediment; treating with chemicals; and, treating mine drainage in underground sumps.

### Siltation Structures: General

All surface drainage from disturbed areas shall be passed through a siltation structure before leaving the permit area. Siltation structures shall mean a sedimentation pond, a series of sedimentation ponds, or other treatment facility. Other treatment facilities means any chemical treatments, such as flocculation, or mechanical structures, such as clarifiers, that have a point-source discharge and that are utilized to prevent additional contribution of suspended solids to streamflow or runoff outside the permit area.

Disturbed area requiring treatment through a siltation structure shall not include those areas in which the only underground mining activities include: diversion ditches, siltation structures, or roads that are designed, constructed and maintained in accordance with the regulatory requirements; and, for which the upstream area is not otherwise disturbed by the operator.

Additional contributions of suspended solids and sediment to streamflow or runoff outside the permit area shall be prevented to the extent possible using the best technology currently available. Siltation structures for an area shall be constructed before beginning any underground mining activities in that area, and upon construction shall be certified by a qualified registered professional engineer, or when authorized under the regulations, by a qualified registered professional land surveyor, to be constructed as designed and as approved in the reclamation plan.

Any siltation structure which impounds water shall be designed, constructed and maintained in accordance with the requirements for impoundments.

Siltation structures shall be maintained until removal is authorized by the Division and the disturbed area has been stabilized and revegetated. In no case shall the structure be removed sooner than 2 years after the last augmented seeding. When the siltation structure is removed, the land on which the siltation structure was located shall be regraded and revegetated in accordance with the reclamation plan. Sedimentation ponds approved by the Division for retention as permanent impoundments may be exempted from this requirement.

Any point-source discharge of water from underground workings to surface waters which does not meet effluent limitations shall be passed through a siltation structure before leaving the permit area.

### Siltation Structures: Sedimentation ponds

Sedimentation ponds, when used, shall: be used individually or in series; be located as near as possible to the disturbed area and out of perennial streams unless approved by the Division; and, be designed, constructed, and maintained to:

- 1.) Provide adequate sediment storage volume;
- 2.) Provide adequate detention time to allow the effluent from the ponds to meet State and Federal effluent limitations;
- 3.) Contain or treat the 10-year, 24-hour precipitation event ("design event") unless a lesser design event is approved by the Division based on terrain, climate, other site-specific conditions and on a demonstration by the operator that the effluent limitations will be met;
- 4.) Provide a nonclogging dewatering device adequate to maintain the required time;
- 5.) Minimize, to the extent possible, short circuiting;
- 6.) Provide periodic sediment removal sufficient to maintain adequate volume for the design event;
- 7.) Ensure against excessive settlement;
- 8.) Be free of sod, large roots, frozen soil, and acid- or toxic-forming coal-processing waste; and
- 9.) Be compacted properly.

A sedimentation pond shall include either a combination of principal and emergency spillways or a single open-channel spillway configured as specified in this section, designed and constructed to safely pass the applicable design precipitation event. The Division may approve a single open-channel spillway that is: of nonerodible construction and designed to carry sustained flows; or earth- or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected.

The required design precipitation event for a sedimentation pond meeting the spillway requirements of this section is: for a sedimentation pond meeting the size or other criteria of 30 CFR Sec. 77.216(a), a 100-year 6-hour event, or greater event as specified by the Division; or, for a sedimentation pond not meeting the size or other criteria of 30 CFR Sec. 77.216(a), a 25-year 6-hour event, or greater event as specified by the Division.

In lieu of meeting the above spillway requirements, the Division may approve a sedimentation pond that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer or, as applicable, a qualified registered professional land surveyor that: the sedimentation pond will safely control the design precipitation event; the water from which shall be safely removed in accordance with current, prudent, engineering practices; and, such a sedimentation pond shall be located where failure would not be expected to cause loss of life or serious property damage. If the sediment pond is located where failure would be expected to cause loss of life or serious property damage, a sedimentation pond that relies primarily on storage to control the runoff from the design precipitation event may be allowed if, in addition to the design event, is: in the case of a sedimentation pond meeting the size or other criteria of 30 CFR Sec. 77.216(a), designed to control the precipitation of the probable maximum precipitation of a 6-hour event, or greater event as specified by the Division; or, in the case of a sedimentation pond not meeting the size or other criteria of 30 CFR Sec. 77.216(a), designed to control the precipitation of a 100-year 6-hour event, or greater event as specified by the Division.

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### Siltation Structures: Other treatment facilities

Other treatment facilities shall be designed to treat the 10-year, 24-hour precipitation even unless a lesser design event is approved by the Division based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations will be met. Other treatment facilities shall be designed, constructed and maintained accordance with the applicable requirements as described under sediment ponds.

### Siltation Structures: Exemptions

Exemptions to the requirements of this section may be granted if: the disturbed drainage area within the total disturbed area is small; and, the operator demonstrates that siltation structures and alternate sediment control measures are not necessary for drainage from the disturbed drainage areas to meet effluent limitations and applicable State and Federal water-quality standards for the receiving waters.

### Discharge structures

Discharge from sedimentation ponds, permanent and temporary impoundments, coal processing waste dams and embankments, and diversions shall be controlled, by energy dissipators, riprap channels, and other devices, where necessary, to reduce erosion, to prevent deepening or enlargement of stream channels, and to minimize disturbance of the hydrologic balance. Discharge structures shall be designed according to standard engineering design procedures.

### Impoundments

The following requirements apply to both temporary and permanent impoundments:

- 1.) An impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a) shall comply with the requirements of 30 CFR Sec. 77.216 and this section.
- 2.) The design of impoundments shall be certified as designed to meet the requirements of the regulations using current, prudent, engineering practices and any design criteria established by the Division. The qualified, registered, professional engineer or qualified, registered, professional, land surveyor shall be experienced in the design and construction or impoundments.
- 3.) An impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a) or located where failure would be expected to cause loss of life or serious property damage shall have a minimum static safety factor of 1.5 for a normal pool with steady state seepage saturation conditions, and a seismic safety factor of at least 1.2. Impoundments not meeting the size or other criteria of 30 CFR Sec. 77.216(a), except for a coal mine waste impounding structure, and located where failure would not be expected to cause loss of life or serious property damage shall have a minimum static safety factor of 1.3 for a normal pool with steady state seepage saturation conditions. For an impoundment not meeting the size of other criteria of 30 CFR Sec. 77.216(a), where failure would not be expected to cause loss of life or serious property damage, the Division may establish engineering design standards that ensure stability comparable to a 1.3 minimum static safety factor in lieu of engineering tests to establish compliance with the minimum static safety factor of 1.3.
- 4.) Impoundments shall have adequate freeboard to resist overtopping by waves and by sudden increases in storage volume.
- 5.) Foundations and abutments for an impounding structure shall be stable during all phases of construction and operation and shall be designed based on adequate and accurate information on the foundation conditions. For an impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a), foundation investigation, as well as any necessary laboratory testing of foundation material, shall be performed to determine the design requirements for foundation stability. All vegetative and organic materials shall be removed and foundations excavated and prepared to resist failure. Cutoff trenches shall be installed if necessary to ensure stability.
- 6.) Slope protection shall be provided to protect against surface erosion at the site and protect against sudden drawdown.
- 7.) Faces of embankments and surrounding areas shall be vegetated, except that faces where water is impounded may be riprapped or otherwise stabilized in accordance with accepted design practices.
- 8.) Spillways. An impoundment shall include either a combination of principal and emergency spillways, a single open-channel spillway, or, be configured as an impoundment that relies primarily on storage to control the runoff from the applicable design precipitation event. The Division may approve a single open-channel spillway that is: of nonerodible construction and designed to carry sustained flows; or, earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected. Except impoundments that rely primarily on storage to control the runoff, the required design precipitation events for an impoundment having spillways are: for an impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a) a 100-year 6-hour event, or greater event as specified by the Division; and, for an impoundment not meeting the size or other criteria of 30 CFR Sec. 77.216(a), a 25-year 6-hour event, or greater event as specified by the Division. In lieu of meeting the single open-channel spillway requirements, the Division may approve an impoundment that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer or qualified registered professional land surveyor that the impoundment will safely control the design precipitation event, the water from which shall be safely removed in accordance with current, prudent, engineering practices. Such an impoundment shall be located where failure would not be expected to cause loss of life or serious property damage, except where: in the case of an impoundment meeting the size or other criteria of 30 CFR Sec. 77.216(a), it is designed to control the precipitation of the probable maximum precipitation of a 6-hour event, or greater event as specified by the Division; or, in the case of an impoundment not meeting the size or other criteria of 30 CFR Sec. 77.216(a), it is designed to control the precipitation of a 100-year 6-hour event, or greater event as specified by the Division.

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- 9.) The vertical portion of any remaining highwall shall be located far enough below the low-water line along the full extent of highwall to provide adequate safety and access for the proposed water users.
- 10.) Inspections. Except as provided in paragraph (a)(10)(iv) of this section, a qualified registered professional engineer or other qualified professional specialist under the direction of a professional engineer, shall inspect each impoundment as provided in paragraph (a)(10)(i) of this section. The professional engineer or specialist shall be experienced in the construction of impoundments.

Inspections shall be made regularly during construction, upon completion of construction, and at least yearly until removal of the structure or release of the performance bond. The qualified registered professional engineer, or qualified registered professional land surveyor as applicable, shall promptly after each inspection provide to the Division a certified report that the impoundment has been constructed and/or maintained as designed and in accordance with the approved plan and this section. The report shall include discussion of any appearance of instability, structural weakness or other hazardous condition, depth and elevation of any impounded waters, existing storage capacity, any existing or required monitoring procedures and instrumentation, and any other aspects of the structure affecting stability. A copy of the report shall be retained at or near the minesite.

A qualified registered professional land surveyor may inspect any temporary or permanent impoundment that does not meet the size or other criteria of 30 CFR Sec. 77.216(a) and certify and submit the report required above, except that all coal mine waste impounding structures shall be certified by a qualified registered professional engineer. The professional land surveyor shall be experienced in the construction of impoundments. Impoundments subject to 30 CFR Sec. 77.216 must be examined in accordance with 30 CFR Sec. 77.216-3. Other impoundments shall be examined at least quarterly by a qualified person designated by the operator for appearance of structural weakness and other hazardous conditions.

If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment shall promptly inform the Division of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the Division shall be notified immediately. The Division shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

A permanent impoundment of water may be created, if authorized by the Division in the approved permit based upon the following demonstration:

- 1.) The size and configuration of such impoundment will be adequate for its intended purposes.
- 2.) The quality of impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable State and Federal water quality standards, and discharges from the impoundment will meet applicable effluent limitations and will not degrade the quality of receiving water below applicable State and Federal water quality standards.
- 3.) The water level will be sufficiently stable and be capable of supporting the intended use.
- 4.) Final grading will provide for adequate safety and access for proposed water users.
- 5.) The impoundment will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.
- 6.) The impoundment will be suitable for the approved postmining land use.

The Division may authorize the construction of temporary impoundments as part of underground mining activities.

### Ponds, impoundments, banks, dams, and embankments

Each application shall include a general plan for each proposed sedimentation pond, water impoundment, and coal processing waste bank, dam, or embankment within the proposed permit area. Each general plan shall:

- 1.) Be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor with assistance from experts in related fields such as landscape architecture;
- 2.) Contain a description, map, and cross section of the structure and its location;
- 3.) Contain preliminary hydrologic and geologic information required to assess the hydrologic impact of the structure;
- 4.) Contain a survey describing the potential effect on the structure from subsidence of the subsurface strata resulting from past underground mining operations if underground mining has occurred; and
- 5.) Contain a certification statement which includes a schedule setting forth the dates when any detailed design plans for structures that are not submitted with the general plan will be submitted to the Division. The Division shall have approved, in writing, the detailed design plan for a structure before construction of the structure begins.

Each detailed design plan for a structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall:

- 1.) Be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture;
- 2.) Include any geotechnical investigation, design, and construction requirements for the structure;
- 3.) Describe the operation and maintenance requirements for each structure; and
- 4.) Describe the timetable and plans to remove each structure, if appropriate.



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Each detailed design plan for a structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall:

- 1.) Be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments covered by Sections 817.81-817.84 of this Chapter shall be certified by a qualified, registered, professional engineer;
- 2.) Include any design and construction requirements for the structure, including any required geotechnical information;
- 3.) Describe the operation and maintenance requirements for each structure; and
- 4.) Describe the timetable and plans to remove each structure, if appropriate.

Sedimentation ponds, whether temporary or permanent, shall be designed in compliance with the requirements of Siltation Structures. Any sedimentation pond or earthen structure which will remain on the proposed permit area as a permanent water impoundment shall also be designed to comply with the requirements for Impoundments. Each plan shall, at a minimum, comply with the requirements of the Mine Safety and Health Administration, 30 CFR Sections 77.216-1 and 77.216-2.

Permanent and temporary impoundments shall be designed to comply with the requirements for Impoundments. Each plan for an impoundment meeting the size of other criteria of the Mine Safety and Health Administration shall comply with the requirements of 30 CFR Sec. 77.216-1 and 77.216-2. The plan required to be submitted to the District Manager of MSHA under Sec. 77.216 of this title shall be submitted to the Division as part of the permit application. For an impoundment not meeting the size of other criteria of 30 CFR Sec. 77.216(a) and located where failure would not be expected to cause loss of life or serious property damage, the Division may establish through the State program approval process engineering design standards that ensure stability comparable to a 1.3 minimum static safety factor in lieu of engineering tests to establish compliance with the minimum static safety factor of 1.3.

Coal processing waste banks, dams and embankments shall be designed to comply with the requirements for Coal Mine Waste. Each plan shall comply with the requirements of the Mine Safety and Health Administration, 30 CFR Sections 77.216-1 and 77.216-2, and shall contain the results of a geotechnical investigation of the proposed dam or embankment foundation area, to determine the structural competence of the foundation which will support the proposed dam or embankment structure and the impounded material. The geotechnical investigation shall be planned and supervised by an engineer or engineering geologist, according to the following:

- 1.) The number, location, and depth of the borings and test pits shall be determined using current prudent engineering practice for the size of the dam or embankment, quantity of material to be impounded, and subsurface conditions.
- 2.) The character of the overburden and bedrock, the proposed abutment sites, and any adverse geotechnical conditions which may affect the particular dam, embankment, or reservoir site shall be considered.
- 3.) All springs, seepage, and ground-water flow observed or anticipated during wet periods in the area of the proposed dam or embankment shall be identified on each plan.
- 4.) Consideration shall be given to the possibility of mudflows, rock-debris falls, or other landslides into the dam, embankment, or impounded material.

If the structure is 20 feet or higher or impounds more than 20 acre-feet, each plan of this section shall include a stability analysis of each structure. The stability analysis shall include, but not be limited to, strength parameters, pore pressures, and long-term seepage conditions. The plan shall also contain a description of each engineering design assumption and calculation with a discussion of each alternative considered in selecting the specific design parameters and construction methods.

### Analysis:

#### *Ground-water and Surface-water Monitoring Plans*

The Permittee plans to protect the ground-water system. The Permittee has identified that no ground-water system exists below the surface facilities. The facilities sits on top of the Mancos Shale, a formation that measures several hundred feet thick in shale that prevents the vertical and horizontal movement of water. All potential acid and toxic material will be disposed of in a confined stable area and covered with at least 4 feet of soil.

Contamination of aquifers above the coal seam is unlikely, because the aquifers are perched and exist in formations several hundred feet above the coal seam. The aquifers should not be intercepted by mining activities.

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The Permittee has based the ground-water and surface-water monitoring plans on the PHC determination and the analysis of baseline hydrologic, geologic, and other information in the proposed amendment. Water samples from seeps, springs, and streams will be analyzed for the parameters listed in Tables 7-4 and 7-5. The parameters in Tables 7-4 and 7-5 match the operational parameters in the Division's Directive Tech 004. Monitoring reports will be submitted to the Division at least every three months, within 30 days following the end of each quarter (Section 731.212). A permit condition will be that these data be submitted in an electronic format suitable for downloading directly into the Division's electronic water quality database.

The proposed amendment includes a commitment to analyze ground- and surface-water samples for baseline parameters preceding each 5-year permit renewal (Section 731.200). These permit-renewal baseline analyses will be done for the surface-water samples collected at either high or low flow and for the spring samples collected at low flow during that year.

The Permittee's water-monitoring plan is intended to provide data to show impacts to potentially affected springs, seeps, impoundments and drainages within and adjacent to the permit area by comparison with relevant baseline data and with applicable effluent limitations. The Permittee has selected monitoring locations and frequencies, described in Table 7-3, so that significant springs, seeps, impoundments and drainages that could potentially be impacted by the mining and reclamation operations will be monitored on a regular basis (Section 731.222.1).

#### **Ground-water Monitoring**

Nine sites are proposed for ground-water monitoring: L-5-G through L-10-G and IPA 1, 2, and 3. They are listed in Table 7-3 and locations are shown on Plate 7-4. Seeps and springs will be monitored quarterly for parameters listed in Table 7-5. Station L-5-G is the potential mine discharge point and will be monitored in accordance with UPDES Permit requirements. IPA 1, 2, and 3 will be monitored quarterly for depth.

Springs L-6-G through L-10-G were selected for monitoring. They are located over or adjacent to the area of proposed mining. These springs correlate to some of the same seeps and springs monitored previously by JBR Consultants, while working for Kaiser Steel Corporation. They also correlate with springs monitored by EarthFax Engineering, who conducted monitoring for IPA. The springs are shown in Table 7-3.

Four of the springs proposed for operational monitoring are identified by the Permittee as L-7-G, L-8-G, L-9-G (Pine Spring), and L-10-G (William's Draw spring) and correspond with the springs monitored by EarthFax as 9, 10, 16(Z), and 14, respectively. Other springs may be included as deemed necessary. Appendices 7-1 and 7-6 of the Lila Canyon Significant Revision contain data on Springs 9, 10, 14, and 16(Z) from 1993, 1994, and 1995, when they were monitored for baseline for the South Lease by IPA.

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L-6-G is in the vicinity of Mont Spring, water right 91-617, and Leslie Spring, water right 91-618. These water rights correspond closely to JBR sample sites H-21 and H-19 and are near H-20, H-21A, H-21B, and H-22; H-18 has been selected by the Permittee as L-6-G to monitor ground water in this area because it is the lowest spring in the stratigraphic sequence.

The spring to be monitored by the Permittee at L-7-G was monitored as 9 (S-9) from 1993 to 1995. Spring 9 is near springs 8, 19-A, and 19-B and has had the most consistent flow of the group. Baseline data for Spring 9 are in Appendices 7-1 and 7-6. The Permittee identifies Spring 9 as Cottonwood Spring, which is associated with water right 91-2521 in Table 7-2; however, the location described for water right 91-2521 in Table 7-2 (NE/4 Sec. 13, T. 16 S., R. 14 E.) is probably very general (as are many descriptions of water-right locations): that NE quarter-section is on a topographic high and there are no identified springs at that location. Water rights 91-399 and 91-2537 are closer to springs 8, 9, 19-A, and 19-B.

A water-monitoring program was implemented in July 2000 to determine if the springs proposed for operational monitoring were still viable and to establish a current baseline that would be continuous with operational monitoring (Chapter 7): L-6-G (H-18, HC-18, EWL-25), L-7-G (9, S-9), L-8-G (10, S10), L-9-G (16, 16Z, S-16), and L-10-G (14, S14) were monitored in July and November 2000 and February 2001, but there was no flow or no access reported for all sites: reports are in Appendix 7-1 of the proposed amendment. May 2001, L-10-G, <sup>2</sup> was flowing approximately 1 gpm: no water-quality samples were aken.

Baseline water levels for 1994, 1995, and 1996 have been established at three points: IPA 1, IPA2, and IPA3. The MRP contains a commitment to monitor these three wells quarterly for water levels. In December 2000, UEI was able to measure the water level in IPA-2, but at IPA-1 and IPA-3 the probe was not able to go far enough into the wells to reach water. Water monitoring reports indicate the wells were not accessible in February 2001. All three wells were successfully measured by EIS on May 15, 2001. The information is reported in Appendix 7-1.

Map 7-1, based on data garnered from several sources, shows potential ground-water levels and where the Permittee anticipates the mine workings will intercept ground water. The amount of ground water that will actually enter the mine workings depends on the storage capacity of the surrounding formation, the permeability, and type of structure at the mining face. If mine water interception occurs, the water will be stored in sumps and used in the mine and, if necessary, discharged from the mine. Eventually, the three IPA wells may be intercepted by the mine, so in addition to the three wells, the Permittee commits in Section 731.513 to the monitoring of underground usage and discharge to more accurately define potential impacts on ground water.

Ground-water will be monitored and data will be submitted at least every three months for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the approved reporting period. When the analysis of any ground-water sample indicates noncompliance

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<sup>2</sup>Field visit on May 15, 2001 of Jim Smith and Dave Darby of UDOGM and Tom Paluso of Environmental Industrial Services.

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with the permit conditions, then the operator will promptly notify the Division and immediately take the actions provided for in 145 and 731 (Section) 731.212). Ground-water monitoring will continue through mining and reclamation until bond release (Section 731.214).

Equipment, structures and other devices used in conjunction with monitoring the quality of ground water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator and when no longer needed (Section 731.215).

**Surface-water Monitoring**

Sediment pond and mine discharges will be monitored monthly or as frequently as discharges occur (Table 7-3).

Drainages in the area flow in response to snowmelt and precipitation events. The proposed surface-water monitoring program will monitor the Lila Canyon drainage both above and below the disturbed mine site area at L-1-S, L-2-S, and L-3-S and the sediment pond discharge at L-4-S.

UEI's water-monitoring program was initiated in July 2000. This information combined with the other pre-mining data collected on the proposed permit area by JBR Consulting and EarthFax Engineering establish the baseline information required to characterize the premining hydrologic system. The surface- and ground-water monitoring sites will be monitored quarterly during and after the operational period to establish any diminution or damage to the system.

L-1-S, L-2-S, L-3-S, and L-4-S were monitored in July and November 2000 and February 2001. Data sheets show no flow for July 2000 for some sites and no access for November and February 2000 for all four sites. Reports are in Appendix 7-1 of the proposed revision.

Point-source discharge monitoring will be conducted in accordance with 40 CFR Parts 122 and 123, R645-301-751 and as required by the Utah Division of Water Quality (UDWQ) for UPDES permits. A UPDES discharge permit application has been submitted for the proposed sediment pond and mine water discharge for the Lila Canyon operation. Copies of the UPDES permit applications for the Lila Canyon Mine are provided in Appendix 7-5.

The Permittee has outlined some standards by which surface-water quality will be protected. Water quality and quantity can be preserved by handling earth materials, ground-water discharges and runoff in a manner that minimizes the formation of acid or toxic drainage; prevents, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and otherwise prevents water pollution.

Surface-water quality protection is proposed to be accomplished by the plan described in Section 731 and the following methods:

- (1) Proper handling of earth materials to minimize acidic, toxic or other harmful infiltration to ground-water systems, and minimizing surface disturbance;

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- (2) Testing to ensure stockpiled materials are non-acid and non-toxic;
- (3) Controlling and treating disturbed area runoff to prevent discharge of pollutants into surface-water by the use of diversions, culverts, silt fences, sediment ponds, and by chemical treatment if necessary;
- (4) Minimizing and/or treating mine water discharge to comply with UPDES discharge standards;
- (5) Establishing where surface-water resources exist within or adjacent to the permit area through a baseline study (done) and monitoring quality and quantity of significant sources through implementation of a water monitoring plan (proposed);
- (6) Proper handling of potentially harmful materials (such as fuels, grease, oil, etc.) in accordance with an approved Spill Prevention Control and Countermeasure Plan (SPCC).

Locations of all monitoring sites are shown on Plate 7-4 , "Water Monitoring Location Map". Proposed monitoring methods, parameters and frequencies are described in Table 7-3, "Water Monitoring Stations," and Table 7-4, "Water Monitoring Parameters." Monitoring reports will be submitted to the Division at least every 3 months, within 30 days following the end of each quarter. The operational water monitoring plan will be implemented upon approval of the MRP.

The proposed surface-water monitoring plan is detailed in Section 731.220. This plan is based on PHC determination and analysis of all baseline hydrologic, geologic and other information in this permit application. The plan provides for monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance as set forth in R645-301- 751 (see Table 7-4).

The BLM originally proposed that the Permittee, UEI, develop a water monitoring plan for Range Creek, a perennial stream several miles northwest of the mine, to assess any potential impacts from mining to the perennial stream. The BLM later determined that Range Creek was separated from the mine by several miles that impacts from mining activities were unlikely, and that it did not have to be monitored for impacts. The Division concurs with the BLM. No monitoring plan has been proposed by the operator for Range Creek.

Discharges of water from this operation will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the Environmental Protection Agency (EPA) set forth in 40 CFR Part 434 (see Sections 731 and 742).

Monitoring reports will be submitted to the Division at least every 3 months, within 30 days following the end of each quarter (Section 731.220). Surface-water monitoring will continue through mining and reclamation until bond release (Section).

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Equipment, structures and other devices used in conjunction with monitoring the quality and quantity of surface water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator when no longer needed (Section 731.225).

**Acid and Toxic-forming Materials**

Drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water will be avoided by implementation of a SPCC Plan and by the following:

Potentially acid- or toxic-forming materials will be identified by use of Material Safety Data Sheets (MSDS), or by direct sampling and analysis in the case of underground development waste.

Any material which exhibits acid- or toxic-forming characteristics will be properly stored, protected from runoff, removed to an approved disposal site or buried on site beneath a minimum of 4' of non-acid, non-toxic material.

Storage of potentially acid- or toxic-forming materials, such as fuel, oils, solvents and non-coal waste will be in a controlled manner, designed to contain spillage and prevent runoff to surface or ground-water resources.

All oils and solvents will be stored in proper containers within enclosed structures. Fuels will be stored in appropriate tanks, enclosed within concrete or earthen bermed areas designed to contain any spillage.

Noncoal waste (garbage) will be stored in a designated location, in dumpsters, and removed to an approved landfill (ECDC) on a regular, as-needed basis.

Unused or obsolete equipment or supplies will be stored in a designated area. Drainage from the storage area will be directed to the sediment pond as shown on the Sediment Control Map, Plate 7-5.

Underground development waste (if any) will also be stored in a designated area. Such waste will be tested for acid- or toxic-forming potential, and if found to be acid- or toxic-forming, the waste site will be protected from surface runoff by the use of earthen berms.

**Transfer of Wells**

There are presently three monitoring wells in the proposed addition to the permit area. When these wells are no longer required, they will be sealed in a safe, environmentally sound manner in accordance with regulations .

**Discharges Into an Underground Mine**

There are no plans to discharge any water into an underground mine.

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**Gravity discharges from underground mines.**

The proposed access portals are below the coal outcrop, as shown on Plates 5-2 and 7-5. The fan is to be located above the outcrop. The two 1,227-foot access tunnels will slope up at approximately 12 percent, from a starting elevation at the surface of approximately 6,150 feet. The intersection of the coal seam and the rock slope will take place at approximately 6,300 feet elevation. Maximum ground-water elevation measured in the three IPA wells was 5,972 feet, and maximum projected elevation in the vicinity of the rock-slope tunnels is approximately 6,000 feet (Plate 7-1), so it is unlikely the rock slopes will intercept ground water in the regional aquifer.

Based on historical data from other mines in the area, some mine water can be expected to be encountered during the mining operation. Typically, such water is stored in "sumps" or designated areas in the mine and used for mining operations or discharged to the surface.

Presently, the Permittee plans to use the water that is intercepted during mining operations. The Permittee has submitted an application to the UDWQ for a UPDES mine water discharge permit in the event water production is greater than can be used in the mine. The Permittee has identified the mine water discharge and monitoring site as L-5-G. The Permittee has stated that receiving channels will be studied before and during discharge to analyze any changes or adverse impacts from mine water discharge.

Numbers provided in the Lila Canyon Significant Revision (Figure 7-1) indicate ground-water levels would need to rise approximately 150 feet just to reach the starting elevation of the tunnels at the base of the Book Cliffs (6,150 feet) and approximately 300 feet to reach the intersection of the tunnels with the coal seam (6,300 feet). Mining will proceed down dip, to the east, from that intersection. Based on water monitoring results and historical information, it is unlikely water levels will ever reach the intersection of the tunnel and coal seam. Gravity discharge from the surface entries of the mine is also unlikely.

The Permittee has identified how any excess mine water production will be transported from the mine via a pipe to the Lila Canyon channel. If mine water is discharged the Permittee will submit plans to protect the discharge site and include that site in the disturbed area.

**Water Quality Standards and Effluent Limitations**

The surface-water monitoring point-source discharge will be conducted in accordance with 40 CFR Parts 122 and 123, R645-301-751 and as required by the UDWQ for UPDES permits. A UPDES discharge permit application has been submitted to the UDWQ for the proposed sediment pond and mine water for the Lila Canyon operation. UPDES permit applications for the Lila Canyon Mine are provided in Appendix 7-5. Parameters are shown in Table 7-4. Water monitoring locations and sample frequencies are described in Table 7-3 and on Plate 7-4.

As indicated in Section 731.220, surface-water monitoring data will be submitted to the Division at least every three months. Discharge monitoring reports will be submitted to UDWQ monthly. When analysis of any surface-water sample indicates non-compliance with the permit conditions, the Permittee will promptly notify the Division and immediately take action to identify the source of the problem, correct

the problem and, if necessary, to provide warning to any person whose health and safety is in imminent danger due to the non-compliance.

Any discharge from the sediment pond will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the Environmental Protection Agency set forth in 40 CFR Part 434.

### **Casing and Sealing of Wells**

Three ground-water monitoring wells are identified on the site. There are no plans for other water wells on this site; however, the application states if any wells are installed in the future, requirements of this section will be met. The Permittee has submitted plans to seal all wells in Section 765.

### **Diversions**

The Permittee plans to install two culvert sections, UC-1 and UC-2, in the south fork of Coleman Wash which runs along the south side of the proposed mine pad. Culvert UC-2 will run underneath the sediment pond and the county road. UC-1 will be installed upstream to protect the embankment and the truck turnaround road (Plates 5-2 and 7-2). Both culverts will allow undisturbed runoff to bypass the site without mixing with disturbed area runoff. The Permittee will replace the existing 36-inch culvert under the road with a 60-inch corrugated metal pipe (UC-2, Plate 7-6). UC-1 is also a 60-inch culvert. Calculations<sup>3</sup> show both 60-inch culverts to be oversized, and they will easily transmit the design-storm flow from a 100-year, 6-hour precipitation event, required by the regulations.

Calculations indicate that the 100-year, 6-hour precipitation event would produce a flow of about 51.6 cubic feet per second (cfs) down the channel. A 60-inch culvert with a headwall of one depth in diameter,  $H/D=1$ , will pass a flow of about 95 cfs. A 36-inch diameter culvert could have been used to pass the calculated runoff; however, late summer thunderstorms wash sediment and debris down the channels, and the larger 60-inch culvert was recommended by Utah Division of Water Rights, Stream Alteration Permit Program and the Division to ensure extra safety. The larger culvert should pass debris and extra large flows to protect the culvert and sedimentation pond built above the culvert.

The Permittee has submitted plans for culvert inlet and outlet protection in Figures 4 and 4a of Appendix 7-4. A trash rack will be used to help prevent clogging of UC-2. Riprap will be used to protect the embankments. The Permittee based the riprap sizing on calculations in Figure 7-26 in "Design of Outlet Protection Maximum Tailwater Condition" and "Applied Hydrology and Sedimentology for Disturbed Areas," Barfield, Warner and Haan, 1983. Based on the calculations, the apron has a 0-degree slope, designed to be 20 feet long and widening from 5 feet to 9 feet. Riprap is conservative with a D-50 of 12 inches. It will be placed to a depth of 1.5 feet, and the base layer will consist of an embedded 6-inch layer of drain rock filter. Riprap will also be placed on a 2h:1v side slope to the height of the culvert at the culvert outlet tapering to 2 feet at the outlet of the apron.

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<sup>3</sup>Calculations for peak flow discharge was provided by UEI's consultant using Storm, a computer program using the Soil Conservation Service's (now NRCS) curve number (CN) method. The CN method and culvert sizing methods are described in the National Engineering Handbook, as well as many other sources.



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Other diversions planned for the disturbed area are shown on Plate 7-5. Design details for all diversions are provided in Appendix 7-4. The Permittee indicates that all diversions will be constructed and maintained to comply with the requirements of R645-301-742.100 and R645-301-742.300.

The requirements for obtaining a Stream Alteration Permit for ephemeral drainages<sup>4</sup> is: stream channels which contain riparian vegetation and a relatively frequency of flow. The channel where culverts UC-1 and UC-2 will be placed does not meet those requirements. The channel is classified as ephemeral and vegetation ranges between xeric and mesic, consisting of single leaf ash and rabbitbrush. Regulations require that disturbed area markers be placed along the boundaries of the disturbed area, so no unplanned disturbance should take place.

### Stream Buffer Zones

The Lila Canyon channel and Little Park Wash are classified as intermittent stream channels, since they are over a square mile in area, but function as ephemeral channels. The south fork of Coleman Wash south of the disturbed area is smaller, often dry and is less than a square mile. It also functions as an ephemeral stream. There will be mine development within 100 feet of the Lila Canyon channel and mining beneath Little Park Wash.

The Permittee has provided a subsidence control plan which identifies that the amount of rock strata between the coal seam and the stream channel is sufficient to protect the channel from subsidence impacts and identifies that no interception of flows or diminution of property will occur. Permittee presented sufficient information to establish that a sufficient ratio of overlying rock to mine thickness will provide a sufficient buffer from subsidence. Considering the interbedded shales within the Blackhawk Formation at this site and mine techniques, it is unlikely that Little Park Wash will be affected by mining.

The Division finds the intermittent stream channels will not be affected by mining; that mining within 100 feet of Lila Canyon channel and Little Park Wash will not cause or contribute to the violation of applicable State or Federal water quality standards and will not adversely affect the water quality or quantity or other environmental resources of the streams.

### Sediment Control Measures

Sediment control measures within and adjacent to the disturbed areas are detailed in Appendix 7-4. These measures include a collection system of ditches and culverts which transport runoff and sediment to a sedimentation pond. Silt fences and a berm will also be used to control sediment and runoff from small areas.

The Permittee submitted plans in Appendix 7-4 to construct a berm below the fan portal which will capture and contain the runoff and sediment on site. The fan portal area is small consisting of an area of 0.716 acres. The volume of runoff from a 10-year, 24-hour precipitation event is 0.06 acre-feet. The

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<sup>4</sup>Telephone conversation between Dave Darby, DOGM, and Jim Wells, Utah Division of Water Rights on November 17, 2000,

berm will be 2 feet high and have 2h:1v embankments. The berm should contain the runoff and sediment volume generated from the design storm.

As described in Appendix 7-4, runoff from the disturbed area will be routed via ditches and culverts and captured in a sedimentation pond and/or treated as necessary to meet effluent limitations prior to discharge. Calculations have been submitted for all culverts and ditches which show they are sized to transport the runoff from a 10-year, 24-hour precipitation event.

The primary means of velocity reduction is riprap; however, other methods, such as straw dikes, check dams, and/or vegetative filters, may be employed during the operational or reclamation phases as determined necessary, and with Division approval.

### **Siltation Structures**

As described in Appendix 7-4, siltation structures planned for this operation are a sediment pond and possible minor, temporary sediment traps, such as straw dikes and/or catch basins.

Siltation structures will be designed, constructed and maintained in accordance with regulations.

The Permittee has stated that all siltation structures are temporary and will be removed when not needed. The sedimentation pond will remain for a minimum of two years during the mines' reclamation phase after the disturbed area is regraded to Approximate Original Contours (AOC) to capture and contain sediment. The sedimentation pond will be removed at the end of Phase II Bond Release. Some silt fences may be used to control and contain sediment during Phase II and Phase III, but will be removed before final bond release.

### **Sedimentation Ponds**

The general drainage plan for the disturbed area is to divert surface flows using a system of ditches and culverts which direct flows to a single sedimentation pond for treatment. Sedimentation pond locations, design plans and cross sections are provided on Plates 7-2, 7-5 and 7-6, respectively.

The sediment control plan and proposed sediment pond designs have been prepared and certified by a registered professional engineer.

The pond is designed to contain the runoff from a 10 year - 24 hour precipitation event for the area in addition to a minimum of 2 years of sediment storage. See sediment pond construction specifications in Appendix 7-4 and Plate 7-6. The required volume of the sedimentation pond is calculated at 8.4 acre-feet, which also includes the undisturbed areas UA-2, UA-3, UA-4 and UA-6, and 3 years of sediment storage volume. The volume established for the undisturbed areas was included by UEI in the event any of these areas will be developed in the future. The sedimentation pond size will contain a volume of approximately 8.54 acre-feet, a volume greater than required. Any discharge from the pond will be in accordance with the approved UPDES permit.

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The proposed sedimentation pond is located where failure would not cause loss of life or serious property damage. As shown in Appendix 7-4, the inslope will not be steeper than 3h:1v, and the outslope will not be steeper than 2h:1v. These slopes, along with the 95 percent compaction requirement, will ensure a static safety factor in excess of 1.3, as required by R645-301-533.100.

If the sedimentation pond becomes full and is decanted, or it discharges, the treated runoff will discharge into culvert UC-2, which carries it to the south fork of Colman Wash off the permit area. Site drainage and design details are described in Appendix 7-4 and illustrated on Plate 7-6.

All discharges from the sedimentation pond, diversions, and culverts will be controlled to prevent channel erosion by the use of riprap aprons where discharge velocities exceed 5 feet per second. Figure 4A in Appendix 7-4 shows a typical apron protection structure for UC-2.

#### **Other Treatment Facilities**

No other treatment facilities as defined in R645-100-200 are planned for this operation.

#### **Exemptions for Siltation Structures**

No exemptions were requested by the Permittee.

#### **Discharge Structures**

The principle spillway consists of a 24 inch corrugated metal pipe culvert, which opens to the undisturbed channel culvert (UC-2). It contains a valved decant at the 5834 feet elevation. The emergency spillway will be constructed of a 24 inch corrugated metal stand pipe installed next to the principle spillway. Both spillways will have a 48 inch oil skimmer. Plate 7-6 shows a detailed view of the spillways. The cross-section on plate 7-6 shows a catwalk to access the spillways for sampling and decanting.

The emergency spillway discharges into the 60 inch undisturbed culvert, UC-2, and will be used in combination with the principal spillway to pass the flow of a 25-year, 6-hour precipitation event, (See Appendix 7-4). The corrugated metal pipe emergency spillway has a potential to increase flows over the discharge apron from UC-2. Calculations for riprap protection in Appendix 7-4 is designed to handle the combined flows, 25 year-6 hour flows, discharging from both the sedimentation pond and from the same event flows coming down the undisturbed channel, UC-2.

Diversions and culvert outlets which are expected to have flow velocities in excess of 5 fps will be equipped with erosion and velocity controls as described in Appendix 7-4.

### **Impoundments**

The Permittee proposes to construct only one sedimentation pond that will be in the southeast corner of the disturbed area (See Plate 5-2). The sedimentation pond will have a maximum storage capacity of 12 acre-feet and a height of 11 feet. Therefore, the pond does not meet the criteria for an MSHA pond. The sedimentation pond design was certified by a registered professional engineer.

In Appendix 5-5, the Permittee shows the results of the static safety factor analysis. The lowest safety factor of the embankments is 2.35 for the slopes under saturated conditions, which exceeds the 1.3 requirement. The Permittee did include the analysis of the physical and engineering properties of the foundation materials.

The Permittee states in Appendix 5-5 that the pond is protected against sudden drawdown. The analysis shows that the pond will be safe under sudden drawdown conditions. The safety factor calculated in the analysis is 2.02. A safety factor of 1.0 is considered safe under rapid drawdown conditions; therefore, the Permittee meets the regulatory requirements.

The sedimentation pond design was approved by the Division of Water Rights. The Division has a copy of the approval letter.

A freeboard is planned to resist overtopping by waves and by sudden increases in storage volume. The elevation of the emergency spillway is 5841 feet while the top of the embankment will be 5843 feet, with a freeboard of 2 feet and a volume of 2.36 ac-ft.

The outslopes of the sedimentation pond will be planted with an approved seed mix to help prevent erosion and promote stability. No highwalls are associated with the impoundment. The Permittee committed to conduct inspections required.

The application discusses treatment facilities around the fan portal. The small disturbed area will be treated using silt fences and a berm to control and contain the expected runoff of 0.06 acre-feet for the 10-year, 24-hour design precipitation event.

The sediment pond will be inspected according to the requirements of R645-301-514. The designs will be certified by a professional engineer according to the requirements of R645-301-512.

### **Casing and Sealing of Wells**

There are three water monitoring wells in the Lila Canyon Lease Tract and one water supply well near the Horse Canyon Mine. There are no additional wells planned for the Lila Canyon Mine. All wells will be sealed in accordance with R645-301-765 of the Coal Mining Rules (Section 765).

### **Findings:**

The Permittee has met the minimum operations hydrologic information requirements.

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## **SUPPORT FACILITIES AND UTILITY INSTALLATIONS**

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

**Minimum Regulatory Requirements:**

Each applicant for an underground coal mining and reclamation permit shall submit a description, plans, and drawings for each support facility to be constructed, used, or maintained within the proposed permit area. The plans and drawings shall include a map, appropriate cross sections, design drawings, and specifications sufficient to demonstrate compliance.

Support facilities shall be operated in accordance with a permit issued for the mine or coal preparation plant to which it is incident or from which its operation results. In addition to the other provisions of this part, support facilities shall be located, maintained, and used in a manner that: prevents or controls erosion and siltation, water pollution, and damage to public or private property; and, to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any such contributions shall not be in excess of limitations of State or Federal law.

All surface and underground mining activities shall be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells; oil, gas, and coal-slurry pipelines, railroads; electric and telephone lines; and water and sewage lines which pass over, under, or through the permit area, unless otherwise approved by the owner of those facilities and the Division.

Support facilities shall be operated in accordance with a permit issued for the mine or coal preparation plant to which it is incident or from which its operation results. In addition to the other provisions of this part, support facilities shall be located, maintained, and used in a manner that prevents or controls erosion and siltation, water pollution, and damage to public or private property. Support facilities shall, to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values; and, minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any such contributions shall not be in excess of limitations of State or Federal law.

**Analysis:**

The new support facilities are described in Section 520 of the application, shown on Plate 5-2 and in the appendices in Chapter 5 of the application. Appendix 5-4, New Facility Design, shows design for roads and the sewage system. Appendix 5-7 has designs for the refuse pile. The new structures and facilities listed in Section 520 are as follows:

- Mine Facilities Road
- Security Shack
- Mine Substation
- Office/Bathhouse/Warehouse Parking Area
- Office/Bathhouse
- Mine Parking
- Shop Warehouse
- Non-Coal Waste Area
- Equipment & Supplies Storage Area
- Sewer Tank & Drain Field
- Water Treatment Plant
- Potable Water Tank
- Process Water Tank
- Topsoil Pile
- Refuse Pile
- Sedimentation Pond
- Slope Access Road

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Rock Slopes  
Ventilation Fan  
ROM Underground Belt  
ROM Storage Pile  
Crusher  
Coal Storage Bin  
Truck Scale and Loadout

The Permittee is required to construct and maintain support facilities to:

- Control or prevent erosion, siltation, water pollution and damage to public or private property.
- Minimize damage to fish, wildlife, and related environmental issues such as minimizing additional contributions of suspended solids to streamflows.
- Minimize damage to oil, gas and water wells; oil, gas and coal-slurry pipelines, railroads and other utilities.

All support facilities will be located within the disturbed area. Runoff from the disturbed area will report to the sedimentation pond for treatment before being discharged. For additional details on erosion, siltation and water pollution see the Hydrology section of this TA. Fish and wildlife issues are discussed in detail in the Fish and Wildlife Protection Plan section of this TA.

### Findings:

The Permittee has met the minimum support facilities and utility installation requirements of the regulations.

## SIGNS AND MARKERS

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

### Minimum Regulatory Requirements:

Signs and markers shall: be posted, maintained, and removed by the person who conducts the underground mining activities; be of a uniform design throughout the activities that can be easily seen and read; be made of durable material; and, conform to local laws and regulations. Signs and markers shall be maintained during all activities to which they pertain.

Mine and permit identification signs shall be displayed at each point of access from public roads to areas of surface operations and facilities on permit areas for underground mining activities. Signs will show the name, business address, and telephone number of the person who conducts underground mining activities and the identification number of the current regulatory program permit authorizing underground mining activities. Signs shall be retained and maintained until after the release of all bonds for the permit area.

Perimeter markers shall clearly mark the perimeter of all areas affected by surface operations or facilities before beginning mining activities.

Buffer zones shall be clearly marked to prevent disturbance by surface operations and facilities.

Topsoil markers shall be used where topsoil or other vegetation-supporting material is segregated and stockpiled.

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### Analysis:

The Permittee committed to place signs and markers as required by the Utah Coal Rules which require placement of signs and markers for underground coal mines as follows:

- Be posted, maintained, and removed by the person who conducts the coal mining and reclamation operations.
- Be a uniform design that can be easily seen and read; be made of durable material; and conform to local laws and regulations.
- Be maintained during all activities to which they pertain.
- Identification signs will be displayed at each point of access from public roads to areas of surface operations and facilities on permit areas.
- Show the name, business address, and telephone number of the Permittee who conducts coal mining and reclamation operations and the identification number of the permanent program permit authorizing coal mining and reclamation operations.
- Be maintained until after the release of all bonds for the permit area.
- The perimeter of all areas affected by surface operations or facilities before beginning mining activities will be clearly marked.
- Signs will be erected to mark buffer zones as required under R645-301-731.600 and will be clearly marked to prevent disturbance by surface operations and facilities.
- Topsoil markers will be erected to mark where topsoil or other vegetation-supporting material is physically segregated and stockpiled as required under R645-301-234.

### Findings:

The Permittee has met the minimum requirements of the signs and markers section of the regulations.

## USE OF EXPLOSIVES

Regulatory Reference: 30 CFR Sec. 817.61, 817.62, 817.64, 817.66, 817.67, 817.68; R645-301-524.

Minimum Regulatory Requirements:

#### General Requirements

These requirements apply to surface blasting activities incident to underground coal mining, including, but not limited to, initial rounds of slopes and shafts. Each operator shall comply with all applicable State and Federal laws and regulations in the use of explosives.

All surface blasting operations incident to underground mining shall be conducted under the direction of a certified blaster. Certificates of blaster certification shall be carried by blasters or shall be on file at the permit area during blasting operations. A blaster and at least one other person shall be present at the firing of a blast. Any blaster who is responsible for conducting blasting operations at a blasting site shall be familiar with the site-specific performance standards and give direction and on-the-job training to persons who are not certified and who are assigned to the blasting crew or assist in the use of explosives.

An anticipated blast design shall be submitted if blasting operations will be conducted within 1,000 feet of any building used as a dwelling, public building, school, church or community or institutional building or 500 feet of active or abandoned underground mines. The blast design may be presented as part of a permit application or at a time, before the blast, approved by the Division. The blast design shall contain sketches of the drill patterns, delay periods, and decking and shall indicate the type and amount of explosives to be used, critical dimensions,

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and the location and general description of structures to be protected, as well as a discussion of design factors to be used, which protect the public and meet the applicable airblast, flyrock, and ground-vibration standards. The blast design shall be prepared and signed by a certified blaster. The Division may require changes to the design submitted.

### Preblasting survey

At least 30 days before initiation of blasting, the operator shall notify, in writing, all residents or owners of dwellings or other structures located within ½ mile of the permit area how to request a preblasting survey. A resident or owner of a dwelling or structure within ½ mile of any part of the permit area may request a preblasting survey. This request shall be made, in writing, directly to the operator or to the Division, who shall promptly notify the operator. The operator shall promptly conduct a preblasting survey of the dwelling or structure and promptly prepare a written report of the survey. An updated survey of any additions, modifications, or renovations shall be performed by the operator if requested by the resident or owner.

The operator shall determine the condition of the dwelling or structure and shall document any preblasting damage and other physical factors that could reasonably be affected by the blasting. Structures such as pipelines, cables, and transmission lines, and cisterns, wells, and other water systems warrant special attention; however, the assessment of these structures may be limited to surface conditions and other readily available data. The written report of the survey shall be signed by the person who conducted the survey. Copies of the report shall be promptly provided to the Division and to the person requesting the survey. If the person requesting the survey disagrees with the contents and/or recommendations contained therein, he or she may submit to both the operator and the Division a detailed description of the specific areas of disagreement. Any surveys requested more than 10 days before the planned initiation of blasting shall be completed by the operator before the initiation of blasting.

### General performance standards

The operator shall notify, in writing, residents within ½ mile of the blasting site and local governments of the proposed times and locations of blasting operations. Such notice of times that blasting is to be conducted may be announced weekly, but in no case less than 24 hours before blasting will occur. Unscheduled blasts may be conducted only where public or operator health and safety so require and for emergency blasting actions. When an operator conducts an unscheduled surface blast incidental to underground coal mining operations, the operator, using audible signals, shall notify residents within ½ mile of the blasting site and document the reason. All blasting shall be conducted between sunrise and sunset unless nighttime blasting is approved by the Division based upon a showing by the operator that the public will be protected from adverse noise and other impacts. The Division may specify more restrictive time periods for blasting.

### Blasting signs, warnings, and access control

The operator shall conspicuously place signs reading "Blasting Area" along the edge of any blasting area that comes within 100 feet of any public-road right-of-way, and at the point where any other road provides access to the blasting area and at all entrances to the permit area from public roads or highways, place conspicuous signs which state "Warning! Explosives in Use," which clearly list and describe the meaning of the audible blast warning and all-clear signals that are in use, and which explain the marking of blasting areas and charged holes awaiting firing within the permit area.

Warning and all-clear signals of different character or pattern that are audible within a range of ½ mile from the point of the blast shall be given. Each person within the permit area and each person who resides or regularly works within ½ mile of the permit area shall be notified of the meaning of the signals in the blasting notification.

Access within the blasting areas shall be controlled to prevent presence of livestock or unauthorized persons during blasting and until an authorized representative of the operator has reasonably determined that no unusual hazards, such as imminent slides or undetonated charges, exist and access to and travel within the blasting area can be safely resumed.

### Control of adverse effects

Blasting shall be conducted to prevent injury to persons, damage to public or private property outside the permit area, adverse impacts on any underground mine, and change in the course, channel, or availability of surface or ground water outside the permit area.

Airblast shall not exceed the maximum limits specified in the regulations at the location of any dwelling, public building, school, church, or community or institutional building outside the permit area. The maximum airblast and ground-vibration standards shall not apply at structures owned by the permittee and not leased to another person or at structures owned by the permittee and leased to another person, if a written waiver by the lessee is submitted to the Division before blasting.

Flyrock travelling in the air or along the ground shall not be cast from the blasting site: more than one-half the distance to the nearest dwelling or other occupied structure; beyond the area of control; or beyond the permit boundary.

In all blasting operations, except as otherwise authorized, the maximum ground vibration shall not exceed the values approved by the Division. All structures in the vicinity of the blasting area, such as water towers, pipelines and other utilities, tunnels, dams, impoundments, and underground mines shall be protected from damage by establishment of a maximum allowable limit on the ground vibration, submitted by the operator and approved by the Division before the initiation of blasting.



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The maximum allowable ground vibration shall be reduced by the Division beyond the limits otherwise provided by this section, if determined necessary to provide damage protection. The Division may require an operator to conduct seismic monitoring of any or all blasts and may specify the location at which the measurements are taken and the degree of detail necessary in the measurement.

### **Records of blasting operations**

The operator shall retain a record of all blasts for at least 3 years. Upon request, copies of these records shall be made available to the Division and to the public for inspection.

### **Analysis:**

R645-301-524.220 allows the Permittee to submit a specific blasting plan separate from the MRP. The Permittee has opted to submit a detailed blasting plan if and when they propose to blast.

### **Findings:**

The Permittee has met the minimum regulatory requirements for the use of explosives.

## **MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### **Minimum Regulatory Requirements:**

Each application shall contain maps, plans, and cross sections which show the mining activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations, if the facility or feature was shown and described as an existing structure.

The following shall be shown for the proposed permit area:

#### **Affected area maps**

The boundaries of all areas proposed to be affected over the estimated total life of all mining activities and reclamation activities, with a description of size, sequence, and timing of phased reclamation activities and treatments. All maps and cross sections used for mining design and mining operations shall clearly show the affected and permit area boundaries in reference to the reclamation work being accomplished.

#### **Mining facilities maps**

Location of each facility used in conjunction with mining operations. Such structures and facilities shall include, but not be limited to: buildings, utility corridors, roads, and facilities to be used in mining and reclamation operations or by others within the permit area; each coal storage, cleaning, and loading area; each topsoil, spoil, coal preparation waste, underground development waste, and noncoal waste storage area; each water diversion, collection, conveyance, treatment, storage and discharge facility; each source of waste and each waste disposal facility relating to coal processing or pollution control; each facility to be used to protect and enhance fish and wildlife related environmental values; each explosives storage and handling facility; location of each sedimentation pond, permanent water impoundment, coal processing waste bank, and coal processing water dam and embankment, and disposal areas for underground development waste and excess spoil; and, each plan or profile, at cross sections specified by the Division, of the anticipated surface configuration to be achieved for the affected areas during mining operations.

#### **Mine workings maps**

Location and extent of known workings of proposed, active, inactive, or abandoned underground mines, including mine openings to the surface within the proposed permit and adjacent areas. Location and extent of existing or previously surface-mined areas within the proposed permit area.

#### **Monitoring and sampling location maps**

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, subsidence, fish and wildlife, and air quality, as required during mining operations.

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### Certification Requirements

Cross sections, maps, and plans required to show the design, location, elevation, or horizontal or vertical extent of the land surface or of a structure or facility used to conduct mining and reclamation operations shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional land surveyor, with assistance from experts in related fields such as landscape architecture.

Each detailed design plan for an impounding structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture; include any geotechnical investigation, design, and construction requirements for the structure; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for an impounding structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments shall be certified by a qualified, registered, professional engineer; include any design and construction requirements for the structure, including any required geotechnical information; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

### Analysis:

#### Affected Area Maps

The Mine Map, Plate 5-5, shows the areas where mining is expected to occur including the size, sequence and timing of all mining operations. Plate 5-2, Surface Area, shows the area scheduled to be disturbed. Both maps provide information to describe the affected area. The general area hydrology is identified in Plate 7-1.

#### Mining Facilities Maps

The following is a list of cross-sections and maps provided to show details of the Lila Canyon mine:

Plate 5-2	Mine Facilities Map
Plate 5-5	Mine Workings Map
Plate 7-1	Permit Area Hydrology Map
Plate 7-2	Disturbed Area Hydrology/Watershed
Plate 7-3	Water Rights Locations
Plate 7-4	Water Monitoring Location Map
Plate 7-5	Proposed Sediment Control Map
Plate 7-6	Proposed Sediment Pond
Plate 7-7	Post-Mining Hydrology

#### Mine Workings Maps

The mine workings map is Plate 5-5 which shows the extent of mining and the mining sequence.

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**OPERATION PLAN**

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**Monitoring and Sample Location Maps**

Operational ground-water and surface-water monitoring sites are listed in Table 7-3, and locations are shown on Plate 7-4. The proposed surface-water monitoring program was established to collect data around the Lila Canyon Mine both above and below the disturbed site at L-1-S, L-2-S, and L-3-S. The sedimentation pond discharge point, L-4-S, and the potential mine discharge point, L-5-S, will be monitored in accordance with UPDES permit requirements. Current UPDES discharge points UT040013-001A and -002A are also shown on Plate 7-4. Locations of seep and spring ground-water monitoring sites L-6-G through L-10-G and water level monitoring wells IPA 1, 2, and 3 are shown on Plate 7-4.

**Certification Requirements**

All cross sections, maps and plans required by R645-301-512 have been prepared and certified by a registered professional engineer.

**Findings:**

The Permittee met the minimum requirements for maps, plans and cross sections of the regulations.



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### GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Minimum Regulatory Requirements:

Provide a plan for the reclamation of the lands within the proposed permit area, showing how the applicant will comply with the regulatory program and the environmental protection performance standards. .

#### Analysis:

The Division has reviewed each section of the reclamation plan. The Division has found, after conducting this review, that reclamation of the site according to the requirements of the State Program is feasible and that the Permittee has met all regulatory requirements. A detailed discussion of each requirement is discussed below.

#### Findings:

Information in the application is adequate to meet the minimum general reclamation requirements of the regulations.

### POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Minimum Regulatory Requirements:

In general, all disturbed areas shall be restored in a timely manner to conditions that are capable of supporting: the uses they were capable of supporting before any mining; or higher or better uses.

Provide a detailed description of the proposed use, following reclamation, of the land to be affected within the proposed permit area by surface operations or facilities, including a discussion of the utility and capacity of the reclaimed land to support a variety of alternative uses, and the relationship of the proposed use to existing land-use policies and plans. This description shall explain: how the proposed postmining land use is to be achieved and the necessary support activities which may be needed to achieve the proposed land use; where a land use different from the premining land use is proposed, all materials needed for approval of the alternative use; and, the consideration given to making all of the proposed underground mining activities consistent with surface owner plans and applicable State and local land-use plans and programs.

The description shall be accompanied by a copy of the comments concerning the proposed use from the legal or equitable owner of record of the surface areas to be affected by surface operations or facilities within the proposed permit area and the State and local government agencies which would have to initiate, implement, approve, or authorize the proposed use of the land following reclamation.

Determine premining uses of land. The premining uses of land to which the postmining land use is compared shall be those uses which the land previously supported, if the land has not been previously mined and has been properly managed. The postmining land use for land that has been previously mined and not reclaimed shall be judged on the basis of the land use that existed prior to any mining; Provided that, if the land cannot be reclaimed to the land use that existed prior to any mining because of the previously mined condition, the postmining land use shall be judged on the basis of the highest and best use that can be achieved which is compatible with surrounding areas and does

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not require the disturbance of areas previously unaffected by mining.

Criteria for alternative postmining land uses. Higher or better uses may be approved as alternative postmining land uses after consultation with the landowner or the land management agency having jurisdiction over the lands, if the proposed uses meet the following criteria: there is a reasonable likelihood for achievement of the use; the use does not present any actual or probable hazard to public health and safety, or threat of water diminution or pollution; and, the use will not be impractical or unreasonable, inconsistent with applicable land use policies or plans, involve unreasonable delay in implementation, or cause or contribute to violation of Federal, State, or local law.

Approval of an alternative postmining land use, may be met by requesting approval through the permit revision procedures rather than requesting such approval in the original permit application. The original permit application, however, must demonstrate that the land will be returned to its premining land use capability. An application for a permit revision of this type must be submitted in accordance with the requirements of filing for a Significant Permit Revision and shall constitute a significant alternation from the mining operations contemplated by the original permit, and shall be subject to the requirements for permits, permit processing, and administrative and judicial of decisions on permits under the regulatory program.

Surface coal mining operations may be conducted under a variance from the requirement to restore disturbed areas to their approximate original contour, if the following requirements are satisfied:

- 1.) The Division grants a variance from approximate original contour restoration requirements.
- 2.) The alternative postmining land use requirements are met.
- 3.) All applicable requirements of the act and the regulatory program, other than the requirement to restore disturbed areas to their approximate original contour, are met.
- 4.) After consultation with the appropriate land use planning agencies, if any, the potential use is shown to constitute an equal or better economic or public use.
- 5.) The proposed use is designed and certified by a qualified registered professional engineer in conformance with professional standards established to assure the stability, drainage, and configuration necessary for the intended use of the site.
- 6.) After approval, where required, of the appropriate State environmental agencies, the watershed of the permit and adjacent areas is shown to be improved.
- 7.) The highwall is completely backfilled with spoil material, in a manner which results in a static factor of safety of at least 1.3, using standard geotechnical analysis.
- 8.) Only the amount of spoil as is necessary to achieve the postmining land use, ensure the stability of spoil retained on the bench, and all spoil not retained on the bench shall be placed in accordance with all other applicable regulatory requirements.
- 9.) The surface landowner of the permit area has knowingly requested, in writing, that a variance be granted, so as to render the land after reclamation, suitable for an industrial, commercial, residential, or public use (including recreational facilities.)
- 10.) Federal, State, and local government agencies with an interest in the proposed land use have an adequate period in which to review and comment on the proposed use.

### Analysis:

The postmining land uses will be the same as premining land uses. This will be accomplished through the plan presented in the Reclamation Section of the MRP. Support activities following reclamation to achieve the postmining land uses will include site monitoring; remedial actions, such as regrading, reseeding, and replanting; and fencing as necessary to restrict access and grazing.

The reclamation plan presented in the application will restore the site to a condition capable of supporting the postmining land use. The soils reclamation plan ensures there will be adequate water holding capacity to support vegetation similar to what currently exists on the site or enhanced compared to the current vegetation communities.

The undisturbed area currently has slopes that are considered too steep for grazing (steeper than 2h:1v), and the reclaimed area will also have slopes this steep. These slopes are suitable for the wildlife postmining land use. Since the premining and postmining slopes will be similar, the Division considers the backfilling and grading plan to meet postmining land use requirements even though some postmining slopes will not be suitable for grazing.

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The postmining land use is in accordance with the BLM's management plans. Appendix 4-2 contains a letter dated January 15, 1999, from the BLM to the Permittee stating the postmining land use for the area is wildlife habitat, grazing, and incidental recreation.

### Findings:

Information in the MRP meets the postmining land use reclamation requirements of the regulations.

## PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

### Minimum Regulatory Requirements:

Where wetlands and habitats of unusually high value for fish and wildlife occur, the operator conducting underground mining activities shall provide a description of the measures taken to avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Designs and plans for underground mining activities shall include measures to avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

Where fish and wildlife habitat is to be a postmining land use, the plant species to be used on reclaimed areas shall be selected on the basis of the following criteria:

- 1.) Their proven nutritional value for fish or wildlife.
- 2.) Their use as cover for fish or wildlife.
- 3.) Their ability to support and enhance fish or wildlife habitat after the release of performance bonds. The selected plants shall be grouped and distributed in a manner which optimizes edge effect, cover, and other benefits to fish and wildlife.

Where cropland is to be the postmining land use, and where appropriate for wildlife- and crop-management practices, the operator shall intersperse the fields with trees, hedges, or fence rows throughout the harvested area to break up large blocks of monoculture and to diversify habitat types for birds and other animals.

Where residential, public service, or industrial uses are to be the postmining land use and where consistent with the approved postmining land use, the operator shall intersperse reclaimed lands with greenbelts utilizing species of grass, shrubs, and trees useful as food and cover for wildlife.

### Analysis:

The proposed disturbed area contains no wetlands or riparian areas, but it does contain other habitat of unusually high value. The Permittee is mitigating loss of this habitat during operations through a habitat enhancement project (see the operation plan section of this TA), and the reclamation plan is designed to enhance the habitat following mining.

The species in the seed mixture will provide good forage and cover for wildlife. The pinyon/juniper area will be reclaimed to a grass/shrub community, and this should enhance the quality of habitat in the area. There are plenty of pinyon/juniper areas nearby to provide cover, but the greatest need is the increased forage that would be provided in a grass/shrub community. Since transplants will not be planted, plants will not be intentionally grouped, but microhabitats created in the backfilling and grading process, including distribution of rocks on the surface, will result in a non-uniform, diverse habitat.

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Hydrologic analyses indicate there will be no impacts to surface water sources that may be used by wildlife. The Permittee has committed to replace water lost as a result of mining if there are unforeseen effects during the operations.

### Findings:

Information in the application is adequate to meet the requirements of the fish and wildlife protection requirements of the regulations.

### APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

#### Minimum Regulatory Requirements:

**Note** :The following requirements have been suspended insofar as they authorize any variance from approximate original contour for surface coal mining operations in any area which is not a steep slope area.

Criteria for permits incorporating variances from approximate original contour restoration requirements.

The Division may issue a permit for nonmountaintop removal mining which includes a variance from the backfilling and grading requirements to restore the disturbed areas to their approximate original contour. The permit may contain such a variance only if the Division finds, in writing, that the applicant has demonstrated, on the basis of a complete application, that the following requirements are met:

- 1.) After reclamation, the lands to be affected by the variance within the permit area will be suitable for an industrial, commercial, residential, or public postmining land use (including recreational facilities).
- 2.) The criteria for the proposed post mining land use will be met.
- 3.) The watershed of lands within the proposed permit and adjacent areas will be improved by the operations when compared with the condition of the watershed before mining or with its condition if the approximate original contour were to be restored. The watershed will be deemed improved only if: the amount of total suspended solids or other pollutants discharged to ground or surface water from the permit area will be reduced, so as to improve the public or private uses or the ecology of such water, or flood hazards within the watershed containing the permit area will be reduced by reduction of the peak flow discharge from precipitation events or thaws; the total volume of flow from the proposed permit area, during every season of the year, will not vary in a way that adversely affects the ecology of any surface water or any existing or planned use of surface or ground water; and, the appropriate State environmental agency approves the plan.
- 4.) The owner of the surface of the lands within the permit area has knowingly requested, in writing, as part of the application, that a variance be granted. The request shall be made separately from any surface owner consent given for right-of-entry and shall show an understanding that the variance could not be granted without the surface owner's request.

If a variance is granted, the requirements of the post mining land use criteria shall be included as a specific condition of the permit, and, the permit shall be specifically marked as containing a variance from approximate original contour.

A permit incorporating a variance shall be reviewed by the Division at least every 30 months following the issuance of the permit to evaluate the progress and development of the surface coal mining and reclamation operations to establish that the operator is proceeding in accordance with the terms of the variance. If the permittee demonstrates to the Division that the operations have been, and continue to be, conducted in compliance with the terms and conditions of the permit, the review specified need not be held. The terms and conditions of a permit incorporating a variance may be modified at any time by the Division, if it determines that more stringent measures are necessary to ensure that the operations involved are conducted in compliance with the requirements of the regulatory program. The Division may grant variances only if it has promulgated specific rules to govern the granting of variances in accordance with the provisions of this section and any necessary, more stringent requirements.

### Analysis:

The definitions of AOC contained in the Surface Mining Control and Reclamation Act (SMCRA) and the Utah coal rules are primarily statements of the objectives of post-mining backfilling and grading so that the area "closely resembles the general surface configuration of the land prior to mining" and "blends into and complements the drainage pattern of the surrounding terrain". At the same time,



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reclamation performance standards must be met, including controlling erosion, establishing mass stability and establishing permanent, diverse and effective vegetative cover. In some circumstances, replicating the original contour may only be possible at the expense of one or more reclamation performance standards. In other circumstances, it may be possible to achieve nearly exact original contour and simultaneously satisfy all the other regulatory requirements. Although the principles of regulatory construction suggest that specific regulatory requirements take precedence over general provisions, this directive is intended to reconcile the specific performance standard requirements of the regulatory program with the general definitions of AOC in a way that accomplishes the objectives of SMCRA.

The underlying objectives of the AOC requirements relate to the assumption that post-mining features which mimic pre-mining features are most likely to quickly achieve mass and erosional stability, revegetation, hydrologic balance and productive post-mining land use, all of which are the objectives of the reclamation performance standards. AOC also addresses aesthetic considerations. In order to evaluate methods for achieving AOC, the underlying objectives and challenges of reclamation at the site in question must first be identified.

### *Final Surface Configuration*

The main question that is used to determine if the site meets this requirement is "Does the postmining topography, excluding elevation, closely resemble its premining configuration?" The Division relies on the judgement of the technical staff that reviews the reclamation plan. The staff reviewed all the premining and post mining topographic maps and cross sections and determined that this condition is met based on the following:

- The premining and postmining topography as shown on cross-sections on Figure 2 in Appendix 5-7 are similar. The postmining topography will vary to accommodate coal mine waste, however, AOC will be achieved.
- The amount of non-topsoil material that will be handled during reclamation is 44,201 cubic yards see worksheet 3 in Appendix 8-1.
- By comparison the amount of topsoil to be handled during reclamation is 65,436 cubic yards.

### *All Spoil Piles to be Eliminated*

No spoil piles are associated with this site.

### *All Highwalls to be Eliminated*

The Permittee states in Section 553.120 the following:

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Minor highwalls may be created with the development of the rock slope portals. Upon completion of mining, these entries will be sealed as per Closure for Mine Openings Appendix 5-6, and highwalls will be eliminated during the reclamation phase of the operation. During reclamation, suitable materials will be placed against the portals. This material will be shaped to eliminate the highwall and to bring the slope back to the approximate original contour.

Plate 5-9 shows the premining, operational and postmining cross sections for all portals. The two portals that provide access to the mine via the rock tunnel will have highwalls or face-ups that are approximately the same height as the openings, which is 6 feet. The highwalls may be slightly taller because the Permittee may need to remove loose rock. Since the portal face up areas are in a nearly vertical cliff, the Permittee will eliminate the highwall by backfilling against the portal face-up.

The fan portal will have a 17-foot highwall. Some of the cliff will have to be removed when the fan facility is constructed. The highwall will be constructed in a high cliff. After reclamation the highwall will be backfilled to the premining topography.

Safety is a major concern with highwalls. Since the Lila Canyon highwalls are in an existing cliff, the existence and reclamation of the highwalls will not create additional safety hazards. The steep cliffs above the two lower reclaimed portals will prevent people, livestock and wildlife from traveling over the highwall areas. People, livestock and wildlife traveling over the upper reclaimed highwall will face the same hazards as found on any other slope in the area.

Because the highwalls areas will be restored to approximate premining topography the Division finds that the highwall elimination plans meets the minimum requirements of R645-301-553.120.

### *Hydrology*

The main concerns with hydrology are that the drainages are restored, sediment is controlled and that no hazardous or toxic discharges will occur. The Division considers that those conditions will be met when the hydrologic reclamation requirements are met.

### *Post-Mining Land Use:*

The Division has found that the application meets the general post-mining land use requirements

### *Variance from AOC:*

The Permittee did not request a variance from AOC.

### *General Backfilling and Grading:*

The Division analysis of the general backfilling and grading requirements is in the backfilling and grading section of this TA. The Division has found the general backfilling and grading requirements are satisfied.

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### Findings:

The Permittee meets the minimum approximate original contour restoration requirements of the regulations.

### BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

#### Minimum Regulatory Requirements:

##### General

Disturbed areas shall be backfilled and graded to: achieve the approximate original contour; eliminate all highwalls, spoil piles, and depressions; achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long term static safety factor of 1.3 and to prevent slides; minimize erosion and water pollution both on and off the site; and, support the approved postmining land use.

The postmining slope may vary from the approximate original contour when approval is obtained from the Division for a variance from approximate original contour requirements, or when incomplete elimination of highwalls in previously mined areas is allowed under the regulatory requirements. Small depressions may be constructed if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation.

If it is determined by the Division that disturbance of the existing spoil or underground development waste would increase environmental harm or adversely affect the health and safety of the public, the Division may allow the existing spoil or underground development waste pile to remain in place. Accordingly, regrading of settled and revegetated fills to achieve approximate original contour at the conclusion of underground mining activities shall not be required if: the settled and revegetated fills are composed of spoil or nonacid- or nontoxic-forming underground development waste; the spoil or underground development waste is not located so as to be detrimental to the environment, to the health and safety of the public, or to the approved postmining land use; stability of the spoil or underground development waste must be demonstrated through standard geotechnical analysis to be consistent with backfilling and grading requirements for material on the solid bench (1.3 static safety factor) or excess spoil requirements for material not placed on a solid bench (1.5 static safety factor); and, the surface of the spoil or underground development waste shall be vegetated in accordance with the revegetation standards for success, and surface runoff shall be controlled in accordance with the regulatory requirements for diversions.

Spoil shall be returned to the mined-out surface area. Spoil and waste materials shall be compacted where advisable to ensure stability or to prevent leaching of toxic materials. Spoil may be placed on the area outside the mined-out surface area in nonsteep slope areas to restore the approximate original contour by blending the spoil into the surrounding terrain if the following requirements are met: all vegetative and organic materials shall be removed from the area; the topsoil on the area shall be removed, segregated, stored, and redistributed in accordance with regulatory requirements; the spoil shall be backfilled and graded on the area in accordance with the general requirements for backfilling and grading.

Disposal of coal processing waste and underground development waste in the mined-out surface area shall be in accordance with the requirements for the disposal of spoil and waste materials except that a long-term static safety factor of 1.3 shall be achieved.

Exposed coal seams, acid- and toxic-forming materials, and combustible materials exposed, used, or produced during mining shall be adequately covered with nontoxic and noncombustible materials, or treated, to control the impact on surface and ground water, to prevent sustained combustion, and to minimize adverse effects on plant growth and the approved postmining land use.

Cut-and-fill terraces may be allowed by the Division where: needed to conserve soil moisture, ensure stability, and control erosion on final-graded slopes, if the terraces are compatible with the approved postmining land use; or, specialized grading, foundation conditions, or roads are required for the approved postmining land use, in which case the final grading may include a terrace of adequate width to ensure the safety, stability, and erosion control necessary to implement the postmining land-use plan.

Preparation of final-graded surfaces shall be conducted in a manner that minimizes erosion and provides a surface for replacement of topsoil that will minimize slippage.

##### Previously mined areas

Remining operations on previously mined areas that contain a preexisting highwall shall comply with all other reclamation requirements except as provided herein. The requirement that elimination of highwalls shall not apply to remining operations where the volume of all reasonably available spoil is demonstrated in writing to the Division to be insufficient to completely backfill the reaffected or enlarged

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highwall. The highwall shall be eliminated to the maximum extent technically practical in accordance with the following criteria:

- 1.) All spoil generated by the remining operation and any other reasonably available spoil shall be used to backfill the area. Reasonably available spoil in the immediate vicinity of the remining operation shall be included within the permit area.
- 2.) The backfill shall be graded to a slope which is compatible with the approved postmining land use and which provides adequate drainage and long-term stability.
- 3.) Any highwall remnant shall be stable and not pose a hazard to the public health and safety or to the environment. The operator shall demonstrate, to the satisfaction of the Division, that the highwall remnant is stable.
- 4.) Spoil placed on the outslope during previous mining operations shall not be disturbed if such disturbances will cause instability of the remaining spoil or otherwise increase the hazard to the public health and safety or to the environment.

### Backfilling and grading on steep slopes

Underground mining activities on steep slopes shall be conducted so as to meet other applicable regulatory requirements and the requirements of this section. The following materials shall not be placed on the downslope: spoil; waste materials of any type; debris, including that from clearing and grubbing; abandoned or disabled equipment; land above the highwall shall not be disturbed unless the Division finds that this disturbance will facilitate compliance with the environmental protection standards and the disturbance is limited to that necessary to facilitate compliance; and, woody materials shall not be buried in the backfilled area unless the Division determines that the proposed method for placing woody material within the backfill will not deteriorate the stable condition of the backfilled area.

### Special provisions for steep slope mining

No permit shall be issued for any operations covered by steep slope mining, unless the Division finds, in writing, that in addition to meeting all other regulatory requirements, the operation will be conducted in accordance with the requirements for backfilling and grading on steep slopes. Any application for a permit for surface coal mining and reclamation operations covered by steep slope mining shall contain sufficient information to establish that the operations will be conducted in accordance with the requirements for backfilling and grading on steep slopes.

This section applies to any person who conducts or intends to conduct steep slope surface coal mining and reclamation operations, except: where an operator proposes to conduct surface coal mining and reclamation operations on flat or gently rolling terrain, leaving a plain or predominantly flat area, but on which an occasional steep slope is encountered as the mining operation proceeds; where a person obtains a permit under the provisions for mountaintop removal mining; or, to the extent that a person obtains a permit incorporating a variance from approximate original contour restoration requirements.

## Analysis:

The general backfilling and grading requirements are as follows:

### *Achieve AOC:*

The AOC issues are discussed in the AOC section of this TA. The Division made the finding that the reclamation plan is adequate to insure that the site can be reclaimed to the approximate original contour requirements.

### *Elimination of Highwalls Spoil Piles and Depressions:*

Highwall elimination is discussed in the AOC section of this TA. The highwall elimination plan shows that all highwalls will be fully reclaimed. No spoil piles will be associated with the site. No major depressions will be present after reclamation, see Plate 5-6, Post Mining Topography. Minor depressions (pocks) may be left after topsoil placement to stabilize the surface and retain moisture. The pocks generally fill in within a few years.

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*Slope Stability:*

The slope stability requirements are in R645-301-553.130, which states that the postmining slope will not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long-term static safety factor of 1.3 and prevent slides. Some exceptions to those requirements are allowed on pre-SMCRA sites. Since Lila Canyon is a post-SMCRA site those exemptions do not apply. The reclaimed slopes at the Lila Canyon mine site will meet the slope stability requirements because:

- The angle of repose for materials in and around the Lila Canyon site is approximately 35°, a 1.5h:1v slope. The steepest reclaimed slope is the upper portion of the slope by the fan portal, and that slope will not exceed 35°.
- The safety factor calculations for the reclaimed slopes are in Appendix 5-5. The reclaimed slopes that were analyzed will have a minimum static safety factor of 4.8 under dry conditions and 3.1 under saturated conditions. In addition to the slopes listed in Appendix 5-5 the Division and the Permittee conducted additional slope stability studies using STABLE, a slope stability program.
- The backfilling and grading plan has been prepared by a registered professional engineer. The plan was designed to ensure that the slopes will be stable and resistant to slides. By keeping the slope angle less than the angle-of-repose and by having the safety factor greater than 1.3, slides will be prevented from occurring. Minor slide and surface slumping will be prevented by pocking the steep slope surfaces. Pocking interlocks the topsoil with the subsoil layers.

*Minimize Erosion and Water Pollution:*

The plans for minimizing erosion and water pollution are detailed in Appendix 7-4. The Division has reviewed the reclamation hydrology issues for the Lila Canyon mine site and found that minimum requirements have been met.

*Post-Mining Land Use:*

The post mining land-use finding is in the post-mining land use section of the TA. The reclaimed contours will be compatible with the post mining land use. The postmining land use is wildlife habitat, grazing, and incidental recreation, which is identical to the premining land use. The postmining land use is in accordance with the BLM's management plans. See Appendix 4-2 of the MRP for a BLM postmining land use approval letter.

*Settled and Revegetated Fills:*

The variances from AOC and other requirements for existing spoil or underground development waste do not apply to the Lila Canyon Mine since those materials are not present on the site before the permit is issued.

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*Spoil Disposal:*

Spoil is defined as overburden removed during coal mining and reclamation. Overburden is defined as material that overlies a coal deposit with the exception of topsoil. The only spoil that will be generated at the Lila Canyon Mine will be at the fan portal. The spoil will be used as backfill at the fan portal site. The proper compaction of spoil is a performance standard that the Permittee must meet during reclamation.

*Disposal of Coal Mine Waste and Underground Development Waste:*

The Division considers the material from the rock slope tunnels to be underground development waste; therefore, that material must be disposed in a refuse pile. The backfilling and grading requirements that apply to disposal of coal mine waste and underground development waste (refuse pile) are as follows:

- The final configuration for the refuse pile will be suitable for the approved postmining land use. Terraces may be constructed on the outslope of the refuse pile if required for stability, control of erosion, conservation of soil moisture, or facilitation of the approved postmining land use. The grade of the outslope between terrace benches will not be steeper than 2h:1v (50 percent).
- Following final grading of the refuse pile, the coal mine waste will be covered with a minimum of four feet of the best available, nontoxic and noncombustible material.
- A long-term static safety factor of 1.3 will be achieved.

The reclamation plan for the refuse pile is in Appendix 5-7. The refuse pile will meet the requirements of R645-301-553.250 because:

- The reclaimed mine site including the refuse pile will meet the postmining land use.
- The coal mine waste and underground development waste will be buried below grade in a depression in the disturbed area. Terraces will not be used and the grade of the outslopes will not be steeper than 3h:1v. See drawing 5-7B for details.
- The Permittee has committed to covering the refuse with 4 feet of nontoxic and noncombustible materials. See drawing 5-7B for details.
- The slopes in and around the reclaimed refuse pile will have very gentle slopes with a stability factor greater than 8, (see Appendix 5-7). The minimum safety factor requirement is 1.3, therefore the slopes of the reclaimed refuse pile will be considered stable.

*Exposed Coal Seams and Acid- and Toxic-Forming Materials and Combustible Materials:*

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The Permittee has committed to cover all such materials with 4 feet of fill materials. The only exposed coal will be at the fan portal area. The cross section of the reclaimed fan portal in Plate 5-9 shows that the coal seam will be backfilled by more than 4 feet of fill materials.

### *Cut and Fill Terraces:*

The Permittee does not propose to use cut and fill terraces at the Lila Canyon Mine.

### *Final Preparation of Graded Surfaces:*

The proper preparation of the graded surface is a performance standard that the Permittee must meet during reclamation.

### **Previously Mined Areas:**

There are no known previously mined areas in the disturbed area boundaries for the Lila Canyon site.

### **Backfilling and Grading on Steep Slopes**

The section backfilling and grading on steep slopes or special provisions for steep slope mining are not considered for this TA, because Lila Canyon disturbed area is not considered a steep slope mine. Special provisions for steep slope mining apply when the permittee plans to get a variance from AOC requirements. Since the permittee did not apply to an AOC variance they are not required to address these requirements.

### **Findings:**

The Permittee meets the minimal backfilling and grading requirements of the regulations.

## **MINE OPENINGS**

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

### Minimum Regulatory Requirements:

Each exploration hole, other drillhole or borehole, shaft, well, or other exposed underground opening shall be cased, lined, or otherwise managed as approved by the Division to prevent acid or other toxic drainage from entering ground and surface waters, to minimize disturbance to the prevailing hydrologic balance and to ensure the safety of people, livestock, fish and wildlife, and machinery in the permit area and adjacent area. Each exploration hole, drill hole or borehole or well that is uncovered or exposed by mining activities within the permit area shall be permanently closed, unless approved for water monitoring or otherwise managed in a manner approved by the Division. Use of a drilled hole or monitoring well as a water well must meet the provisions required to protect the hydrologic balance. This section does not apply to holes drilled and used for blasting, in the area affected by surface operations.

Each mine entry which is temporarily inactive, but has a further projected useful service under the approved permit application, shall be protected by barricades or other covering devices, fenced, and posted with signs, to prevent access into the entry and to identify the hazardous nature of the opening. These devices shall be periodically inspected and maintained in good operating condition by the person who conducts the underground mining activities.

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Each exploration hole, other drill hole or borehole, shaft, well, and other exposed underground opening which has been identified in the approved permit application for use to return underground development waste, coal processing waste or water to underground workings, or to be used to monitor ground-water conditions, shall be temporarily sealed until actual use.

When no longer needed for monitoring or other use approved by the Division upon a finding of no adverse environmental or health and safety effects, or unless approved for transfer as a water well, each shaft, drift, adit, tunnel, exploratory hole, entry way or other opening to the surface from underground shall be capped, sealed, backfilled, or otherwise properly managed, as required by the Division and consistent with the requirements of 30 CFR Section 75.1711. Permanent closure measures shall be designed to prevent access to the mine workings by people, livestock, fish and wildlife, machinery and to keep acid or other toxic drainage from entering ground or surface waters.

### Analysis:

The Permittee committed in Section 529 of the MRP to seal all underground openings according to the portal sealing plan in Appendix 5-6 when no longer needed. The portals sealing plan meets Division and MSHA requirements.

Three ground-water monitoring wells and one water supply well are identified on or adjacent to the site. There are no plans for other wells on this site; however, the application says that if any wells are installed in the future, requirements of this section will be met. The Permittee has submitted plans (Section 765) to seal all wells.

As part of the performance standards the Permittee will be required by the Division to barricade and fence mine entries that are temporarily inactive in the permit area. These mine entries will be posted with warning signs. The barricades will be periodically inspected and maintained.

### Findings:

The Permittee meets the minimum mine openings requirements of the regulations.

## TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

### Minimum Regulatory Requirements:

#### Redistribution

Topsoil materials shall be redistributed in a manner that: achieves an approximately uniform, stable thickness consistent with the approved postmining land use, contours, and surface-water drainage systems; prevents excess compaction of the materials; and, protects the materials from wind and water erosion before and after seeding and planting.

Before redistribution of the material, the regarded land shall be treated if necessary to reduce potential slippage of the redistribution material and to promote root penetration. If no harm will be caused to the redistributed material and reestablished vegetation, such treatment may be conducted after such material is replaced.

The Division may choose not to require the redistribution of topsoil or topsoil substitutes on the approved postmining embankments of permanent impoundments or of roads if it determines that placement of topsoil or topsoil substitutes on such embankments is inconsistent with the requirement to use the best technology currently available to prevent sedimentation, and, such embankments will be otherwise stabilized.

Nutrients and soil amendments shall be applied to the initially redistributed material when necessary to establish the vegetative cover.

The Division may require that the B horizon, C horizon, or other underlying strata, or portions thereof, removed and segregated, stockpiled, be redistributed as subsoil in accordance with the requirements of the above if it finds that such subsoil layers are necessary to comply with the revegetation requirements.



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**Analysis:**

**Soil Redistribution**

In Section 232.500, the application says subsoil ranging in thickness from 12 to 30 inches from cutslope sites will be used as fill material for site development and replaced in an approximate original sequence during reclamation. Subsoil from Soil Map Units SBJ, DSH, and VBJ used as construction fill will be identified in as-built maps and used appropriately during reclamation as root zone subsoils (as discussed in Sections 241, 232.100 and 232.500).

Section 241 says that after AOC is achieved, the disturbed surface will be scarified prior to soil redistribution. Rippers mounted on the rear of a dozer will break through the soil layers to a minimum depth of 16 inches.

The grading sequence is itemized in Section 241 as follows:

1. Grade all areas where no subsoil is being stored.
2. Replace subsoil on areas from which it was moved.
3. Rip the subsoil to a minimum of 16 inches.
4. Replace topsoil.
5. Replace boulders.
6. Gouge the topsoil.

Soil replacement volumes are shown in the table below. Soil replacement includes topsoil placement and 4 feet of soil cover over the refuse area. This table does not show volumes of subsoil to be used in pad construction.

After topsoil redistribution, pocking will be the primary method for roughening the surface. Pocking is described in Figure 1, Appendix 5-8, as imprinting the soil surface with a pattern of depressions measuring approximately 36 inches across by 8 inches deep. The purposes for pocking are to capture and retain moisture and to provide a cradle for seedlings and vegetation. Best available technology will be used for enhancing the ability of the soil to absorb moisture.

Section 242.100 says previously stockpiled topsoil will be redistributed on the same areas in a thickness which approximates the reclaimed thickness on the scarified, post-mining graded surface. The plan states that every reasonable effort will be made to replace the same thickness of salvaged soil to each respective area.

On flat areas, soil will be reapplied using a road grader and/or crawler tractor. On steep slope areas, soil will be reapplied using a front-end loader, crawler tractor, and/or trackhoe. Boulders will be replaced to achieve a near natural surface condition.

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**Soil Replacement Depths and Volumes**

Soil Replacement Reclamation Needs	Soil Depth (inches)	Acres	Soil Volume (cubic yards)
Structural Fill & Refuse Storage	30**	3.4	13,307
Topsoil* SBG	18	11.12	26,910
Topsoil* VBJ	18	4.46	10,793
Topsoil* XBS	12	4.77	7,697
Topsoil* DSH	18	1.39	3,364
Topsoil* RBL	8	2.56	2,753
Topsoil* RBT	6	0.76	613
Total			65,436

\* Since the A horizons are less than 6 inches, the plan identifies topsoil as the top 18 inches or all material down to shale, whichever is less.

\*\* Does not include the 18 -inch topsoil placement.

**Soil Nutrients and Amendments**

Section 241 states that an inoculum will be applied to the soil to help assist in reactivating and regenerating soil organisms. The seed mixture will be either hand broadcast over the area and raked into the soil surface, or sprayed on the surface using hydromulch. A wood fiber mulch and tackifier will be hydro-sprayed over the seedbed.

Section 231.300 and Section 243 state that topsoil will be sampled and tested prior to replacement to determine what nutrients are necessary at reclamation time. Grab samples will be collected from the stockpile at various locations and depths. Fertilizer, if needed, will be applied to the topsoil prior to seeding and mulching activities. Sampling will either be performed by a Certified Soil Scientist, or by a person considered to be qualified by the Permittee and DOGM.

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### **Soil Stabilization**

Vegetation will be the primary method for controlling erosion and fugitive dust (Section 244.100). Other measures that will help in erosion control and soil stabilization are pocking and rock placement. In addition, wood fiber mulch will be applied at a rate of 2,000 pounds per acre to the reclaimed areas that have been graded and covered by topsoil or substitute topsoil.

Section 244.200 states that pocking will be the primary method used to roughen the soil surface as per Figure 1 in Appendix 5-8.

### **Findings:**

Information provided in the application is adequate to meet the minimum topsoil and subsoil reclamation requirements of the regulations.

## **ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

### **Minimum Regulatory Requirements:**

#### **Reclamation**

A road not to be retained under an approved postmining land use shall be reclaimed in accordance with the approved reclamation plan as soon as practicable after it is no longer needed for mining and reclamation operations. This reclamation shall include: closing the road to traffic; removing all bridges and culverts unless approved as part of the postmining land use; removing or otherwise disposing of road-surfacing materials that are incompatible with the postmining land use and revegetation requirements; reshaping cut and fill slopes as necessary to be compatible with the postmining land use and to complement the natural drainage pattern of the surrounding terrain; protecting the natural drainage patterns by installing dikes or cross drains as necessary to control surface runoff and erosion; and, scarifying or ripping the roadbed, replacing topsoil or substitute material and revegetating disturbed surfaces.

#### **Retention**

A road to be retained for an approved postmining land use shall be classified as a primary road and designed constructed and maintained in accordance with the requirements for primary roads and in consideration of the approved postmining land use.

### **Analysis:**

The Permittee committed to reclaim all roads including removal of culverts in the disturbed area. The road surfaces (road base gravel) will be removed and buried on site and covered with a minimum of two feet of material. If, in the future, the Permittee proposes to bury asphalt on site, the Division will require at least four feet of growth medium over this material. The roads will be regraded, ripped and topsoiled before seeding.

### **Findings:**

The Permittee has met the minimum regulatory requirements for roads and other transportation facilities.

## **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

### **Minimum Regulatory Requirements:**

#### **Hydrologic reclamation plan**

The application shall include a plan, with maps and descriptions, indicating how the relevant regulatory requirements will be met. The plan shall be specific to the local hydrologic conditions. It shall contain the steps to be taken during mining and reclamation through bond release to minimize disturbance to the hydrologic balance within the permit and adjacent areas; to prevent material damage outside the permit area; and to meet applicable Federal and State water quality laws and regulations. The plan shall include the measures to be taken to: avoid acid or toxic drainage; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow; provide water treatment facilities when needed; and control drainage. The plan shall specifically address any potential adverse hydrologic consequences identified in the PHC determination and shall include preventive and remedial measures.

Each application shall contain descriptions, including maps and cross sections, of stream channel diversions and other diversions to be constructed within the proposed permit area to achieve compliance with the performance standards for those structures.

Postmining rehabilitation of sedimentation ponds, diversions, impoundments, and treatment facilities

Before abandoning a permit area or seeking bond release, the operator shall ensure that all temporary structures are removed and reclaimed, and that all permanent sedimentation ponds, diversions, impoundments, and treatment facilities meet the requirements of this Chapter for permanent structures, have been maintained properly and meet the requirements of the approved reclamation plan for permanent structures and impoundments. The operator shall renovate such structures if necessary to meet the requirements of this Chapter and to conform to the approved reclamation plan.

### **Analysis:**

#### **Ground-water Monitoring**

Ground-water monitoring will continue through mining and reclamation until bond release (Section 731.214). The same ground-water monitoring plan will be used during mine operation and reclamation. Parameters are listed in Table 7-5.

#### **Surface-water Monitoring**

Surface-water monitoring will continue through operational and reclamation periods, until bond release (Section 731.224). Locations, parameters, and sampling frequency (other than UPDES discharge points) may be modified by the Division or by the Permittee with the approval of the Division. Parameters are listed in Table 7-4.

#### **Acid and Toxic-forming Materials**

To ensure surface and ground waters will not be polluted by acid or toxic materials, the slope-rock material (underground development waste) will be examined and tested as necessary to determine acid- and toxic-forming potential (Section 536 of the plan). In Appendix 5-7, the Permittee commits to take a sample of coal processing waste for every 10,000 tons of waste disposed of in the refuse pile. These samples will be analyzed according to the parameters listed in Table 2 of Appendix 5-7. The Division requires that the slope-rock material be disposed of in a refuse pile. At a minimum, the material in the

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refuse pile must be covered with 4 feet of non-acid and non-toxic forming material. (See Chapters 2, 5, and 7, and Appendix 5-7 for details.)

The Permittee states that with over 100 years of mining in the Sunnyside Mining Operation, there have been no proven problems with acid- or toxic-forming materials (Section 6.5.5.1). The Division is aware of an instance where acid water formed at the Sunnyside slurry pond, but it did not cause problems or offsite impacts.

The Division does not expect an acid mine drainage problem to occur at the Lila Canyon Mine because any minor amounts of percolating waters into the refuse pile will not be concentrated. Refuse will be disposed of on high ground, and the refuse will be mounded and buried below four feet of growth medium. With low precipitation and four feet of soil cover, there will be limited contact of water with the refuse.

### **Transfer of Wells**

There are three monitoring wells and one water-supply well in or adjacent to the permit area. There are no plans to transfer any wells to any other party. When these wells are no longer required, they will be sealed in a safe, environmentally sound manner in accordance with regulations (Sections 631.200, 722.400, and 765).

### **Discharges Into an Underground Mine**

The Permittee has not proposed discharges into an underground mine.

### **Gravity Discharges**

Based on water monitoring results and historical information, it is unlikely water levels will ever reach the intersection of the tunnel and coal seam. Therefore, gravity discharge from the surface entries is also unlikely. Section 731.520 explains why gravity discharges from the mine are not expected after mine closure. The coal seam to be mined dips away from the portal site at approximately 12 percent. If water is encountered in the mining, it will likely be at a static level far below the exposed outcrop or rock slopes.

### **Water Quality Standards and Effluent Limitations**

Water monitoring, both surface and ground water, will continue until bond release. Water monitoring data will be submitted every three months for each monitoring location. Should analysis of any sample indicate non-compliance with permit conditions, the Permittee will notify the Division and take immediate steps to correct the problem, and, if necessary, provide notice to anyone whose health and/or safety is in imminent danger due to non-compliance.

### **Diversions**

All disturbed and undisturbed area diversions will be removed during the backfilling and recontouring reclamation period, except culvert UC-2. As undisturbed drainage culverts are removed, straw bales or silt fences will be installed for sediment control. Disturbed area ditches DD-11 and DD-12 will be enlarged as necessary and redesignated RD-1 and RD-2.

When the operations meet Phase II bond release standards, all major sediment control structures will be removed. Reclamation ditches RD-1 and RD-2 will be reclaimed and the undisturbed culvert UC-2 will be cut off and removed at the location of the principal spillway. A portion of culvert UC-2 will remain beneath the county road to maintain drainage following mining. The culvert headwall will be protected with riprap. The upper section of culvert UC-2 will be removed and the channel restored. A newly formed channel will be constructed at grade to intercept the inlet of the culvert at its intersection with the road. The road embankment and associated new channel will be armored with an underlayment of filter material, with D<sup>50</sup>-30 -inch rip-rap protection.

Although reclamation designs are currently adequate, the Permittee has committed to enhancing final design and reclamation plans prior to conducting reclamation activities, which will incorporate state of the art technology in mining and channel reclamation.

### **Stream Buffer Zones**

There no perennial stream channels on the proposed permit area. The Lila Canyon channel is considered the only intermittent channel that could meet the criteria for stream buffer zone protection. The Permittee has identified that development will take place adjacent to the Lila Canyon channel, within 100 feet of an intermittent stream channel. There is a potential that mine water could be discharged into the channel during the operational phase of the mine.

A stream buffer zone will be established to protect the channel. The stream buffer zone will have signs and markers to prevent development in the channel. Any development for discharges into the channel will be submitted in amended plans. The Permittee has committed to studying the channel morphology prior to any discharges and has committed to reclaim all constructed facilities if any are developed.

### **Sediment Control Measures**

All drainage ditches (except the a section of UC-2 under the county road) and sediment controls are considered temporary and will be removed when no longer required. Upon completion of Phase II bond release, the sedimentation pond will be removed and the area will be reclaimed in accordance with the approved plan. The south fork of Coleman Wash will be regraded to AOC and revegetated according to the revegetation plan. The disturbed area will be reclaimed in accordance with the reclamation plan, including any plans enhanced with state of the art technology and approved by the Division.

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### **Siltation Structures**

All siltation structures will be removed during reclamation. See Appendix 7-4 for details on removal of siltation structures.

As indicated in Section 761, the sedimentation pond will remain in place until the erosion control and vegetation requirements for Phase II bond release are met. This will be at least 2 years after the last augmented seeding.

### **Sedimentation Ponds**

The proposed sedimentation pond is considered temporary, and will be removed during final reclamation. The sedimentation pond will be maintained until the disturbed area has been meets sediment control and revegetation standards for Phase II bond release. Removal would not be any sooner than 2 years after the last augmented seeding. Upon pond removal, the area will be regraded and reseeded according to the reclamation plan. Plate 7-7 provides reclamation contours and drainage plans.

### **Discharge Structures**

The sedimentation pond will be used until the end of Phase II bond release. The pond will be removed along with the discharge structures and a major portion of the 60-inch culvert in the south fork of Coleman Wash that diverts undisturbed runoff under the sedimentation pond. The culvert will be separated (cut) on the downstream side of the spillway structures (reference Plate 7-6) and the upper portion removed.

### **Impoundments**

No impoundments will be left on site after Phase II bond release.

### **Casing and Sealing of Wells**

There are three monitoring wells and one water-supply well in or adjacent to the permit area. When these wells are no longer required, they will be sealed in a safe, environmentally sound manner in accordance with regulations (Sections 631.200, 722.400, and 765).

### **Findings:**

The Permittee has met the minimum hydrologic information reclamation requirements of the regulations.

## CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

### Minimum Regulatory Requirements:

#### General

Reclamation efforts, including but not limited to backfilling, grading, topsoil replacement, and revegetation, on all areas affected by surface impacts incident to an underground coal mine shall occur as contemporaneously as practicable with mining operations, except when such mining operations are conducted in accordance with a variance for concurrent surface and underground mining activities issued under Section 785.18 of this Chapter. The Division may establish schedules that define contemporaneous reclamation.

#### Variances for delay in contemporaneous reclamation requirement in combined surface and underground mining activities

This section shall apply to any person or persons conducting or intending to conduct combined surface and underground mining activities where a variance is requested from the contemporaneous reclamation requirements. Any person desiring a variance under this section shall file with the Division, complete applications for both the surface mining activities and underground mining activities which are to be combined. The reclamation and operation plans for these permits shall contain appropriate narratives, maps, and plans, which: show why the proposed underground mining activities are necessary or desirable to assure maximum practical recovery of the coal; show how multiple future disturbances of surface lands or waters will be avoided; identify the specific surface areas for which a variance is sought and the Sections of the Act, this Chapter, and the regulatory program from which a variance is being sought; show how the activities will comply with the requirements for protection of underground mining and other applicable requirements of the regulatory program; show why the variance sought is necessary for the implementation of the proposed underground mining activities; provide an assessment of the adverse environmental consequences and damages, if any, that will result if the reclamation of surface mining activities is delayed; and, show how offsite storage of spoil will be conducted to comply with the requirements of the Act, and the regulatory program.

A permit incorporating a variance under this section may be issued by the Division if it first finds, in writing, upon the basis of a complete application filed in accordance with this section, that: the applicant has presented, as part of the permit application, specific, feasible plans for the proposed underground mining activities; the proposed underground mining activities are necessary or desirable to assure maximum practical recovery of the mineral resource and will avoid multiple future disturbances of surface land or waters; the applicant has satisfactorily demonstrated that the applications for the surface mining activities and underground mining activities conform to the requirements of the regulatory program and that all other permits necessary for the underground mining activities have been issued by the appropriate authority; the surface area of surface mining activities proposed for the variance has been shown by the applicant to be necessary for implementing the proposed underground mining activities; no substantial adverse environmental damage, either onsite or offsite, will result from the delay in completion of reclamation otherwise required; the operations will, insofar as a variance is authorized, be conducted in compliance with the requirements of the regulatory program; comply with the provisions for offsite storage of spoil; liability under the performance bond required will be for the duration of the underground mining activities and until all requirements have been complied with; and, the permit for the surface mining activities contains specific conditions delineating the particular surface areas for which a variance is authorized, identifying the applicable regulatory provisions, and, providing a detailed schedule for compliance with the provisions of this section. Variances granted by permits issued under this section shall be reviewed by the Division no later than 3 years from the dates of issuance of the permit and any permit renewals.

### Analysis:

Reclamation efforts, including but not limited to backfilling, grading, topsoil replacement, and revegetation, on all areas affected by surface impacts incident to an underground coal mine shall occur as contemporaneously as practicable with mining operations, except when such mining operations are conducted in accordance with a variance for concurrent surface and underground mining activities issued under Section 785.18 of this Chapter. The Division may establish schedules that define contemporaneous reclamation.

Because this is an underground operation, a schedule specifically for contemporaneous reclamation is not required. The application does contain a reclamation schedule in Table 3-3 in Chapter 3. The Permittee is not proposing surface mining, so the variance for combined surface and underground operations does not apply.



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### Findings:

Information in the application is adequate to meet the contemporaneous reclamation requirements of the regulations.

## REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

### Minimum Regulatory Requirements:

#### Revegetation: General requirements

The permittee shall establish on regraded areas and on all other disturbed areas except water areas and surface areas of roads that are approved as part of the postmining land use, a vegetative cover that is in accordance with the approved permit and reclamation plan and that is: diverse, effective, and permanent; comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division; at least equal in extent of cover to the natural vegetation of the area; and, capable of stabilizing the soil surface from erosion.

The reestablished plant species shall: be compatible with the approved postmining land use; have the same seasonal characteristics of growth as the original vegetation; be capable of self-regeneration and plant succession; be compatible with the plant and animal species of the area; and, meet the requirements of applicable State and Federal seed, poisonous and noxious plant, and introduced species laws or regulations.

The Division may grant exception to these requirements when the species are necessary to achieve a quick-growing, temporary, stabilizing cover, and measures to establish permanent vegetation are included in the approved permit and reclamation plan.

When the Division approves a cropland postmining land use, the Division may grant exceptions to the requirements related to the original and native species of the area. Areas identified as prime farmlands must also meet those specific requirements as specified under that section.

#### Revegetation: Timing

Disturbed areas shall be planted during the first normal period for favorable planting conditions after replacement of the plant-growth medium. The normal period for favorable planting is that planting time generally accepted locally for the type of plant materials selected.

#### Revegetation: Mulching and other soil stabilizing practices

Suitable mulch and other soil stabilizing practices shall be used on all areas that have been regraded and covered by topsoil or topsoil substitutes. The Division may waive this requirement if seasonal, soil, or slope factors result in a condition where mulch and other soil stabilizing practices are not necessary to control erosion and to promptly establish an effective vegetative cover.

#### Revegetation: Standards for success

Success of revegetation shall be judged on the effectiveness of the vegetation for the approved postmining land use, the extent of cover compared to the cover occurring in natural vegetation of the area, and the general requirements for Revegetation. Standards for success and statistically valid sampling techniques for measuring success shall be selected by the Division and included in an approved regulatory program.

Standards for success shall include criteria representative of unmined lands in the area being reclaimed to evaluate the appropriate vegetation parameters of ground cover, production, or stocking. Ground cover, production, or stocking shall be considered equal to the approved success standard when it is not less than 90 percent of the success standard. The sampling techniques for measuring success shall use a 90-percent statistical confidence interval (i.e., a one-sided test with a 0.10 alpha error).

Standards for success shall be applied in accordance with the approved postmining land use and, at a minimum, the following conditions:

- 1.) For areas developed for use as grazing land or pasture land, the ground cover and production of living plants on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.

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2.) For areas developed for use as cropland, crop production on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.

3.) For areas to be developed for fish and wildlife habitat, recreation, shelter belts, or forest products, success of vegetation shall be determined on the basis of tree and shrub stocking and vegetative ground cover. Such parameters are described as follows: minimum stocking and planting arrangements shall be specified by the Division on the basis of local and regional conditions and after consultation with and approval by the State agencies responsible for the administration of forestry and wildlife programs. Consultation and approval may occur on either a programwide or a permit-specific basis; trees and shrubs that will be used in determining the success of stocking and the adequacy of the plant arrangement shall have utility for the approved postmining land use. Trees and shrubs counted in determining such success shall be healthy and have been in place for not less than two growing seasons. At the time of bond release, at least 80 percent of the trees and shrubs used to determine such success shall have been in place for 60 percent of the applicable minimum period of responsibility; and, vegetative ground cover shall not be less than that required to achieve the approved postmining land use.

For areas to be developed for industrial, commercial, or residential use less than 2 years after regrading is completed, the vegetative ground cover shall not be less than that required to control erosion.

For areas previously disturbed by mining that were not reclaimed to the requirements of the performance standards and that are remined or otherwise redisturbed by surface coal mining operations, as a minimum, the vegetative ground cover shall be not less than the ground cover existing before redisturbance and shall be adequate to control erosion.

The period of extended responsibility for successful revegetation shall begin after the last year of augmented seeding, fertilizing, irrigation, or other work, excluding husbandry practices that are approved by the Division.

In areas of more than 26.0 inches of annual average precipitation, the period of responsibility shall continue for a period of not less than five full years. Vegetation parameters identified for grazing land or pasture land and cropland shall equal or exceed the approved success standard during the growing seasons of any two years of the responsibility period, except the first year. Areas approved for the other uses shall equal or exceed the applicable success standard during the growing season of the last year of the responsibility period.

In areas of 26.0 inches or less average annual precipitation, the period of responsibility shall continue for a period of not less than 10 full years. Vegetation parameters shall equal or exceed the approved success standard for at least the last 2 consecutive years of the responsibility period.

The Division may approve selective husbandry practices, excluding augmented seeding, fertilization, or irrigation, provided it obtains prior approval from the Director as a State Program Amendment that the practices are normal husbandry practices, without extending the period of responsibility for revegetation success and bond liability, if such practices can be expected to continue as part of the postmining land use or if discontinuance of the practices after the liability period expires will not reduce the probability of permanent revegetation success. Approved practices shall be normal husbandry practices within the region for unmined lands having land uses similar to the approved postmining land use of the disturbed area, including such practices as disease, pest, and vermin control; and any pruning, reseeding, and transplanting specifically necessitated by such actions.

### Analysis:

#### Revegetation Plan

Table 3-3 in Chapter 3 is a general reclamation timetable. According to this timetable, seeding and mulching would begin about the first of October, depending on the weather, and seedlings would be planted about the first of November.

Blue grama and galleta are two of the dominant grasses in the area proposed to be disturbed, and they are both warm season grasses. Other mines in Utah have found it difficult to establish these species on reclaimed sites, and this may be because they are often seeded in the fall. Mines in New Mexico and Arizona usually seed these species in the summer to take advantage of late summer rains, but, to the Division's knowledge, no Utah mines have attempted to establish these species by planting them in the summer.

The Permittee has committed to establish test plots to test whether summer seeding will increase establishment of the warm season species. With this commitment, the Division is willing to accept the

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plan to seed in the fall. Further details of the test plot plan are discussed in the "Field Trials" section of this analysis.

Following demolition, the area would be regraded to approximate original contour. These areas will then be ripped 16-18 inches deep and disced. Topsoil will then be distributed to depths from six to eighteen inches as discussed in Chapter 2.

Following topsoil redistribution, the soil will be tilled until large clods on the surface are diminishing. Tilling the soil to reduce the number and size of clods has not been necessary at other Utah mines because clods are broken up as the soil is redistributed, but a limited amount of tilling would not be detrimental. Gouging or poking (see below) would also serve to break up large clods.

According to Section 553.230, surface preparation will include pock marking to minimize the potential for erosion and to enhance vegetation establishment. Because of the limited precipitation, the Division considers surface roughening to be essential at this site. Diagrams of pock mark configurations are shown in Figure 1 in Appendix 5-8.

Appendix 5-8 says that in conjunction with pock marking, the track hoe can cast any vegetation, dead trees, and large rocks back onto the reclaimed surface. This debris provides solar protection but also increases available moisture in small areas and increases topographic and vegetation diversity.

The application provides for adequate rooting depth which is vital for plants in an arid environment. Studies of plant phenology have clearly shown plants in arid areas use soil water from increasing depths as the growing season continues, and if there is inadequate rooting depth, production and vegetative cover will decrease.

The seed mixture for final reclamation is shown in Table 3.4/3.5. It consists of 22 species, 19 of which are native to the area. The introduced species are yellow sweet clover, alfalfa, and forage kochia, and the application discusses the reasons for using these species. Based on the reasons in the plan and as discussed below, the Division can allow using these three species.

There is controversy about whether yellow sweet clover should be included in seed mixes for revegetation, but the Permittee would apply it at a rate of only 0.5 pounds per acre. At this rate, it should not dominate the site or spread to adjacent areas. The plan says yellow sweet clover has proven beneficial in rapid establishment on marginal sites and that, as a legume, it should be able to fix nitrogen. The plan includes a commitment to use inoculated seed.

Alfalfa was recommended by the UDWR, and because this site is marginal for alfalfa, it should not be overly aggressive. Forage kochia is desirable as a browse species, and there is evidence it competes well with downy brome, a weed that dominates much of the proposed disturbed area.

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The seeding rate shown in Table 3.4/3.5 is about 125 seeds per square foot. This is a little higher than the rate recommended by the *Interagency Forage and Conservation Planting Guide for Utah*<sup>5</sup> but is acceptable.

Appendix 5-8 says that if seeding does not result in shrub densities exceeding the success standard, bare root or containerized seedlings may be planted at a rate of approximately 200 per acre. The ratio and species would be determined by the BLM and the UDWR. The plan gives adequate details of when and how seedlings would be planted. If the Permittee plants any seedlings, the species and rates would need to be approved by the Division and then included in the plan. The discussion in the application is for a conceptual plan, and although the Division approves the concept as written, details would need to be approved before being implemented.

Section 341.220 says seed will be broadcast with a hydroseeder. Fertilizer will be broadcast, but the application does not give a specific application method. Fertilizer should not be included with seed during hydroseeding operations. The site will be mulched with 2000 pounds per acre of wood fiber mulch with 100 pounds per acre of a tackifier. Appendix 5-8 provides additional detail and says 500 pounds per acre of wood fiber mulch and 100 pounds per acre of tackifier will be applied with the seed followed by application of an additional 1500 to 2000 pounds per acre of mulch and 100 pounds of tackifier.

Water harvesting methods (gouging) will be used, and there will be no irrigation. No pest or disease control measures are planned, and no serious pest control problems have been reported for the area.

Section 357.301 says the Lila Canyon Mine would like to reserve the right to apply for augmentation of reclaimed areas thus "extending the bond liability period on a site specific case scenario." This statement is acceptable but unnecessary. The regulations in R645-301-357 are designed to allow a limited amount of reseeding and other work for specific purposes without lengthening the extended liability period.

### Success Standards

The reference area for the mine site disturbance was established adjacent to the proposed facilities during the summer of 1999. Its location is shown on Figure 1 in Appendix 3-2.

The grass/shrub reference area is similar in most respects to the proposed disturbed grass/shrub areas, and it is considered an acceptable success standard for comparison to revegetated areas. The Division recommends the reference area be checked every five years to help ensure it is in fair or better condition and thus remains a viable reference area.

The Permittee is proposing to use the grass/shrub reference area as a success standard for the pinyon/juniper community. The pinyon/juniper area has statistically less vegetation cover than the reference area, so this may be a difficult standard to meet. However, reclaiming to a grass/shrub community would enhance the amount of forage available for both wildlife and grazing. A pinyon/juniper

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<sup>5</sup>Utah State University Agricultural Experiment Station and Cooperative Extension Service. 1989. Interagency forage and conservation planting guide for Utah. Howard Horton (ed.). EC 433. Logan, Utah. 66 pp.

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community would generally provide more cover for some wildlife species, but forage tends to be more limiting in this area than cover. Therefore, the Division considers this proposal to be acceptable.

The Division is required in R645-301-356.230 to consult with the UDWR and gain approval for the tree and shrub density standard for success. The standard set in consultation with UDWR is 1500 per acre, and this standard has been included in the plan. The standard was based more on the species expected to become established in the area than on the existing vegetation.

Section 341.250 discusses success standards for diversity, seasonality, and erosion control. To judge diversity, every species with more than 20 percent frequency would be classified into a life form. The standard is that the reclaimed area must have at least as many species in each life form, except introduced and undesirable species, as the reference area. The reclaimed and reference areas would not need to have exactly the same species. Life form categories would be native grass, native broadleaf forb, native shrub, desirable introduced, and undesirable species. Undesirable species are those generally classified as weeds or that are poisonous to livestock or wildlife. The basic method used to judge diversity will be used to assess seasonality except that the life form categories would simply be warm and cool season. This is a relatively easy standard to measure and is acceptable.

Although the numbers may be different when reference area vegetation is measured for bond release, the diversity standard according to information gathered in 1999 would be two shrub species, one broadleaf forb, and six grasses. In addition, two undesirable species were encountered with greater than 20 percent frequency. There were three warm season species, five cool season, and one species (purple three-awn) about which no information on seasonality was found.

The proposed erosion standard is that vegetation will have demonstrated its erosion control effectiveness when UPDES effluent standards are met. All drainages leading away from the permit area would be sampled as often as practical. In addition the Permittee commits in Section 244.300 to repair all rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved postmining land use or the reestablishment of vegetative cover. The rills and gullies will be filled, regraded, or otherwise stabilized. Topsoil will be replaced, and the areas will be reseeded or planted (R645-301-244.300). The repair and/or treatment of rills and gullies which result from a deficient surface water control or grading plan, as defined by the recurrence of rills and gullies, will be considered an augmentative practice and will thus restart the extended responsibility period (R645-301-357.364).

### Field Trials

The plan says the methods outlined have a proven performance based on the successful reclamation of the Horse Canyon Mine. Section 354 discusses timing of seeding for blue grama and galleta. The Permittee will use these species in the interim seed mix adjacent to the sediment pond. The west half of the pond disturbance will be seeded in mid-summer following construction. The east half will be seeded in the late fall. The line separating these two areas will be staked, and ocular estimates of reclamation success will be taken each fall for three years. If there appears to be a difference in the two areas, quantitative samples will be taken. If it is possible to derive a conclusion about timing of seeding, the timing of seeding, fall versus summer, will be modified accordingly at the time of permit renewal.

**Findings:**

Information provided in the plan is adequate to meet the revegetation requirements of the regulations. Using the techniques described in the application, the Division considers that revegetation is feasible at this site.

**STABILIZATION OF SURFACE AREAS**

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

**Minimum Regulatory Requirements:**

All exposed surface areas shall be protected and stabilized to effectively control erosion and air pollution attendant to erosion. Rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved postmining land use or the reestablishment of the vegetative cover, or, cause or contribute to a violation of water quality standards for receiving streams, shall be filled, regraded, or otherwise stabilized; topsoil shall be replaced; and the areas shall be reseeded or replanted.

**Analysis:**

Vegetation will be the primary method for controlling erosion and fugitive dust (Section 244.100). Other measures that will help in erosion control and soil stabilization are pocking and rock placement. Pocking is illustrated in Figure 1 in Appendix 5-8. In addition, wood fiber mulch will be applied at a rate of 2,000 pounds per acre to the reclaimed areas that have been graded and covered by topsoil or substitute topsoil.

Section 341.220 indicates that 2000 pounds per acre of wood fiber mulch with 100 pounds per acre of a tackifier will be used to mulch the site. Appendix 5-8 provides additional detail and says 500 pounds per acre of wood fiber mulch and 100 pounds per acre of tackifier will be applied with the seed followed by application of an additional 1500 to 2000 pounds per acre of mulch and 100 pounds of tackifier. Section 357.365 says that "areas in excess of 3:1 slopes will receive additional mulch and tackifier to facilitate vegetation establishment."

Rills and gullies in excess of eight inches width and/or depth will be repaired on a seasonal basis (Section 357.360). In addition, Section 244.300 states a commitment to stabilize rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved postmining land use or the reestablishment of vegetative cover, and which cause or contribute to a violation of water quality standards for receiving streams, will be filled, regraded, or otherwise stabilized, re-topsoiled and re-seeded.

**Findings:**

The Permittee has met the minimum surface stabilization requirements of the Regulations.

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### CESSATION OF OPERATIONS

Regulatory Reference: 30 CFR Sec. 817.131, 817.132; R645-301-515, -301-541.

#### Minimum Regulatory Requirements:

Each person who conducts mining activities shall effectively support and maintain all surface access openings to underground operations, and secure surface facilities in areas in which there are no current operations, but operations are to be resumed under an approved permit. Temporary abandonment shall not relieve a person of his or her obligation to comply with any provisions of the approved permit.

Before temporary cessation of mining and reclamation operations for a period of 30 days or more, or as soon as it is known that a temporary cessation will extend beyond 30 days, each person who conducts underground mining activities shall submit to the Division a notice of intention to cease or abandon operations. This notice shall include a statement of the exact number of surface acres and the horizontal and vertical extent of subsurface strata which have been in the permit area prior to cessation or abandonment, the extent and kind of surface area reclamation which will have been accomplished, and identification of the backfilling, regrading, revegetation, environmental monitoring, underground opening closures, and water-treatment activities that will continue during the temporary cessation.

The person who conducts underground mining activities shall close or backfill or otherwise permanently reclaim all affected areas, in accordance with this Chapter and according to the permit approved by the Division.

All surface equipment, structures, or other facilities not required for continued underground mining activities and monitoring, unless approved as suitable for the postmining land use or environmental monitoring, shall be removed and the affected lands reclaimed.

#### Analysis:

The Permittee committed to comply with R645-301-515 and R645-301-541 for temporary and permanent cessation. If there is temporary cessation that will last more than 30 days, the Permittee will notify the Division. After permanent cessation, the Permittee committed to remove all equipment and surface structures.

#### Findings:

The Permittee met the minimum requirements for cessation of operations.

### MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

#### Minimum Regulatory Requirements:

Each application shall contain maps, plans, and cross sections which show the reclamation activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations, if the facility or feature was shown and described as an existing structure.

The permit application must include as part of the reclamation plan information, the following maps, plans and cross sections:

##### Affected area boundary maps

The boundaries of all areas proposed to be affected over the estimated total life of all mining activities and reclamation activities, with a description of size, sequence, and timing of phased reclamation activities and treatments. All maps and cross sections used for reclamation design purposes shall clearly show the affected and permit area boundaries in reference to the reclamation work being accomplished.

##### Bonded area map

The permittee shall identify the initial and successive areas or increments for bonding on the permit application map and shall specify the bond amount to be provided for each area or increment. The bond or bonds shall cover the entire permit area, or an identified increment of land within the permit area upon which the operator will initiate and conduct surface coal mining and reclamation operations during the initial term of the permit. As surface coal mining and reclamation operations on succeeding increments are initiated and conducted within the permit

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area, the permittee shall file with the Division an additional bond or bonds to cover such increments. Independent increments shall be of sufficient size and configuration to provide for efficient reclamation operations should reclamation by the Division become necessary.

### Reclamation backfilling and grading maps

Contour maps and cross sections to adequately show detail and design for backfilling and grading operations during reclamation. Where possible, cross sections shall include profiles of the pre-mining, operations, and post-reclamation topography. Contour maps shall be at a suitable scale and contour interval so as to adequately detail the final surface configuration. When used in the formulation of mass balance calculations, cross sections shall be at adequate scale and intervals to support the mass balance calculations. Mass balance calculations derived from contour information must demonstrate that map scale and contour accuracy are adequate to support the methods used in such earthwork calculations. Detailed cross sections shall be provided when required to accurately depict reclamation designs which include, but are not limited to: terracing and benching, retained roads, highwall remnants, slopes requiring geotechnical analysis, and embankments of permanent impoundments.

### Reclamation facilities maps

Location of each facility that will remain on the proposed permit area as a permanent feature, after the completion of underground mining activities. Location and final disposition of each sedimentation pond, permanent water impoundment, coal processing waste bank, and coal processing water dam and embankment, disposal areas for underground development waste and excess spoil, and water treatment and air pollution control facilities within the proposed permit area to be used in conjunction with phased reclamation activities or to remain as part of reclamation.

### Final surface configuration maps

Sufficient slope measurements to adequately delineate the final surface configuration of the area affected by surface operations and facilities, measured and recorded according to the following: each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area disturbed or, where this is impractical, at locations specified by the Division; where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance determined by the Division to be representative of the post-reclamation configuration of the land; and, slope measurements shall take into account variations in slope, to provide accurate representation of the range of slopes and reflect geomorphic differences of the area disturbed through reclamation activities.

### Reclamation monitoring and sampling location maps

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, subsidence, fish and wildlife, and air quality, if required, to demonstrate reclamation success.

### Reclamation surface and subsurface manmade features maps

The location of all buildings in and within 1,000 feet of the proposed permit area, with identification of the current or proposed use of the buildings at the time of final reclamation. The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including, but not limited to, major electric transmission lines, pipelines, fences, and agricultural drainage tile fields. Each public road located in or within 100 feet of the proposed permit area and all roads within the permit area which are to be left as part of the post-mining land use. Buildings, utility corridors, and facilities to be used in conjunction with reclamation or to remain for final reclamation.

### Reclamation treatments maps

The location and boundaries of any proposed areas for reclamation treatments including but not limited to: location, extent and depth of materials used for resoling; location, extent and types of treatments for revegetation including soil preparation, soil amendments, mulching, seeding, variations in seed mixtures, and other revegetation treatments. Each water diversion, collection, conveyance, treatment, storage and discharge facility to be used during reclamation. *Each facility to be used to protect and enhance fish and wildlife related environmental values.* other treatments or applications which are specifically designed or required as part of phased or final reclamation activity.

### Certification Requirements.

Cross sections, maps, and plans required to show the design, location, elevation, or horizontal or vertical extent of the land surface or of a structure or facility used to conduct mining and reclamation operations shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional land surveyor, with assistance from experts in related fields such as landscape architecture.

Each detailed design plan for an impounding structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture; include any geotechnical investigation, design, and construction requirements for the structure; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for an impounding structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land



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surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments shall be certified by a qualified, registered, professional engineer; include any design and construction requirements for the structure, including any required geotechnical information; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

### **Analysis:**

#### **Affected Area Boundary Maps**

Plate 5-4 shows the boundaries of all lands that are expected to be affected by the Lila Canyon Mine. Plates 5-6, 5-7A and 5-7B show the reclamation topography and cross sections.

#### **Bonded Area Map**

Plate 1-1 shows the permit areas A and B( Horse Canyon Mine and Lila Canyon Mine) for which a reclamation bond will be posted.

#### **Reclamation Backfilling and Grading Maps**

Plates 5-6, 5-7A, and 5-7B show the reclamation contours and cross sections. The maps and cross section were adequate for the following purposes:

- To determine mass balance calculations.
- To show that all terraces, benches, roads, highwalls will be removed or fully reclaimed.
- For slope stability analysis (See Appendix 5-5) for reclaimed slopes. Note: no impoundments will be left after reclamation.

#### **Reclamation Facilities Maps**

The Permittee will not leave any facilities after final reclamation. Therefore, such a map is not needed.

#### **Final Surface Configuration Maps**

Plate 5-6 and Plate 5-7 show the proposed final surface topography. The maps and cross sections show the slopes extending 100 linear feet beyond the disturbed permit boundaries. The Division found that those maps and cross sections are sufficient to show the geomorphic differences of the disturbed and undisturbed areas.

#### **Reclamation Surface and Subsurface Manmade Features Maps**

The Permittee states that no manmade features in the reclaimed area remain, other than the 60 inch culvert section that will under lie the county road in the south fork of Coleman Wash.

### **Certification Requirements**

All cross sections, maps and plans required by R645-301-512 have been certified by a registered professional engineer.

### **Findings:**

The Permittee has met the minimum requirements for maps, plans and cross-sections of reclamation operations.

## **BONDING AND INSURANCE REQUIREMENTS**

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

### **Minimum Regulatory Requirements:**

#### **General**

After a permit application has been approved, but before a permit is issued, the applicant shall file with the Division, on a form prescribed and furnished by the Division, a bond or bonds for performance made payable to the Division and conditioned upon the faithful performance of all the requirements of the Act, the regulatory program, the permit, and the reclamation plan.

The bond or bonds shall cover the entire permit area, or an identified increment of land within the permit area upon which the operator will initiate and conduct surface coal mining and reclamation operations during the initial term of the permit. As surface coal mining and reclamation operations on succeeding increments are initiated and conducted within the permit area, the permittee shall file with the Division an additional bond or bonds to cover such increments.

The operator shall identify the initial and successive areas or increments for bonding on the permit application map and shall specify the bond amount to be provided for each area or increment. Independent increments shall be of sufficient size and configuration to provide for efficient reclamation operations should reclamation by the Division become necessary.

An operator shall not disturb any surface areas, succeeding increments, or extend any underground shafts, tunnels, or operations prior to acceptance by the Division of the required performance bond.

The applicant shall file, with the approval of the Division, a bond or bonds under one of the following schemes to cover the bond amounts for the permit area as determined: a performance bond or bonds for the entire permit area; a cumulative bond schedule and the performance bond required for full reclamation of the initial area to be disturbed; or, an incremental-bond schedule and the performance bond required for the first increment in the schedule.

#### **Form of bond**

The Division shall prescribe the form of the performance bond. The Division may allow for: a surety bond; a collateral bond; a self-bond; or a combination of any of these bonding methods.

Performance bond liability shall be for the duration of the surface coal mining and reclamation operation and for a period which is coincident with the operator's period of extended responsibility for successful revegetation or until achievement of the reclamation requirements of the Act, regulatory programs, and permit, whichever is later.

With the approval of the Division, a bond may be posted and approved to guarantee specific phases of reclamation within the permit area provided the sum of phase bonds posted equals or exceeds the total amount required. The scope of work to be guaranteed and the liability assumed under each phase bond shall be specified in detail.

Isolated and clearly defined portions of the permit area requiring extended liability may be separated from the original area and bonded separately with the approval of the Division. Such areas shall be limited in extent and not constitute a scattered, intermittent, or checkerboard pattern of failure. Access to the separated areas for remedial work may be included in the area under extended liability if deemed necessary by the Division.

The bond liability of the permittee shall include only those actions which he or she is obligated to take under the permit, including completion of the reclamation plan, so that the land will be capable of supporting the postmining land use approved. Implementation of an alternative postmining land use which is beyond the control of the permittee, need not be covered by the bond. Bond liability for prime farmland shall be specific to include productivity requirements.

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### **Determination of bond amount**

The amount of the bond required for each bonded area shall: be determined by the Division; depend upon the requirements of the approved permit and reclamation plan; reflect the probable difficulty of reclamation, giving consideration to such factors as topography, geology, hydrology, and revegetation potential; and, be based on, but not limited to, the estimated cost submitted by the permit applicant.

The amount of the bond shall be sufficient to assure the completion of the reclamation plan if the work has to be performed by the Division in the event of forfeiture, and in no case shall the total bond initially posted for the entire area under 1 permit be less than \$10,000.

An operator's financial responsibility for repairing material damage resulting from subsidence may be satisfied by the liability insurance policy required in this section.

### **Terms and conditions for liability insurance**

The Division shall require the applicant to submit as part of its permit application a certificate issued by an insurance company authorized to do business in the United States certifying that the applicant has a public liability insurance policy in force for the surface coal mining and reclamation operations for which the permit is sought. Such policy shall provide for personal injury and property damage protection in an amount adequate to compensate any persons injured or property damaged as a result of the surface coal mining and reclamation operations, including the use of explosives, and who are entitled to compensation under the applicable provisions of State law. Minimum insurance coverage for bodily injury and property damage shall be \$300,000 for each occurrence and \$500,000 aggregate.

The policy shall be maintained in full force during the life of the permit or any renewal thereof and the liability period necessary to complete all reclamation operations under this Chapter.

The policy shall include a rider requiring that the insurer notify the Division whenever substantive changes are made in the policy including any termination or failure to renew.

The Division may accept from the applicant, in lieu of a certificate for a public liability insurance policy, satisfactory evidence from the applicant that it satisfies applicable State self-insurance requirements approved as part of the regulatory program and the requirements of this section.

## **Analysis:**

### **Form of Bond (Reclamation Agreement)**

The Operator did not submit a bond as part of the application. The Division allows the Operator to submit a bond separately after the Division determined the bond amount, which can be after the TA has been completed. Before the Division issues a permit the application must post a bond, see the requirements of R645-301-820. Upon receipt of the bond, the Division then makes a finding about whether or not the bond is in the proper form; see R645-301-860 for the requirements for the proper form of the bond. The Division cannot issue the permit until an adequate bond has been posted.

### **Determination of Bond Amount**

The Division used information in Appendix 8-1, Chapters 3 and 5 to calculate the reclamation cost. The Division determined that the Permittee must post a bond of \$1,556,000 (2006 dollars) for the Lila Canyon Mine. This sum is in addition to the bond currently posted for the Horse Canyon Mine which was last adjusted on May 21, 2001.

### **Terms and Conditions for Liability Insurance**

A copy of the certificate of liability insurance is in Appendix 8-2. The policy is held with Federal Insurance Company and expires on June 1, 2002.

**Findings:**

The Permittee has met the minimum Bonding and Insurance requirements of the regulations. However, the Permittee must post the additional bond prior to the significant revision being formally approved. The Division calculated the reclamation costs for the Lila Canyon Mine to be \$1,556,000 (2006 dollars).

**SPECIAL CATEGORIES OF MINING**

## **REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING**

### **PRIME FARMLAND**

Regulatory Reference: 30 CFR Sec. 785.16, 823; R645-301-221, -302-300 et seq.

**Minimum Regulatory Requirements:**

All permit applications, whether or not prime farmland is present, shall include the results of a reconnaissance inspection of the proposed permit area to indicate whether prime farmland exists. The Division in consultation with the U.S. Soil Conservation Service shall determine the nature and extent of the required reconnaissance inspection.

If the reconnaissance inspection indicates that land within the proposed permit area may be prime farmland historically used for croplands, the applicant shall determine if a soil survey exists for those lands and whether soil mapping units in the permit area have been designated as prime farmland. If no soil survey exists, the applicant shall have a soil survey made of the lands within the permit area which the reconnaissance inspection indicates could be prime farmland. Soil surveys of the detail used by the U.S. Soil Conservation Service for operational conservation planning shall be used to identify and locate prime farmland soils.

If the soil survey indicates that prime farmland soils are present within the proposed permit area, the following shall apply:

**Prime Farmland Application contents.**

All permit applications for areas in which prime farmland has been identified within the proposed permit area shall include the following:

- 1.) A soil survey of the permit area.
- 2.) A plan for soil reconstruction, replacement, and stabilization
- 3.) Scientific data, such as agricultural-school studies, for areas with comparable soils, climate, and management that demonstrate that the proposed method of reclamation, including the use of soil mixtures or substitutes, if any, will achieve, within a reasonable time, levels of yield equivalent to, or higher than, those of nonmined prime farmland in the surrounding area.
- 4.) The productivity prior to mining, including the average yield of food, fiber, forage, or wood products obtained under a high level of management.

### **Analysis:**

There will be no mining operations conducted in Prime Farmlands during the proposed life of this significant revision.

### **Findings:**

The Permittee has submitted sufficient information for this section.

### **OPERATIONS IN ALLUVIAL VALLEY FLOORS**

Regulatory Reference: 30 CFR Sec. 822; R645-302-324.

**Minimum Regulatory Requirements:**

This part sets forth additional requirements for surface coal mining and reclamation operations on or which affect alluvial valley floors in the arid and semiarid regions of the country.

**Analysis:**

There will be no mining operations conducted in Alluvial Valley Floors during the proposed life of this significant revision.

**Findings:**

The Permittee has submitted sufficient information for this section.

## CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

The Division has provided an assessment of the probable cumulative hydrologic impacts (CHIA) of the proposed operation, and all anticipated mining, upon surface- and ground-water systems in the cumulative impact area. The CHIA is sufficient to determine, for purposes of permit approval, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The Division used data and analyses from several sources, including those submitted by the Permittee in the Lila Canyon Significant Revision.



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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Governor

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July 18, 2001

TO: Internal File

FROM: Mary Ann Wright, Associate Director, Mining

RE: Analysis and Finding on the Lila Canyon Road, Utah American Energy, Inc., Horse Canyon Mine, C/007/013

Following is a finding and analysis of the road leading to the Lila Canyon Mine Facility which is proposed to be constructed in conjunction with the Horse Canyon Mine. This analysis and findings takes into account the regulations and policy under the Utah Coal Regulatory Program (UCRP) in regards to the "Permitting of Roads". This document will accompany and become part of the permit findings for the Lila Canyon Revision to the Horse Canyon Mine permit issued by the UCRP.

## SUMMARY

Presently, there are two access routes to the proposed Lila Canyon Mine area. One route starts near the Horse Canyon Mine and extends south following the Book Cliffs escarpment. The second route heads east from U. S. Highway 191/6, passes the proposed Lila Canyon site, and eventually connects to the first route. Both of these routes, constructed in the early 1940's, have generally been called the Lila Canyon Road and have had little if any maintenance over the years. The southwestern portion of the Lila Canyon Road (from US 191/6 to the proposed mine site), is presently claimed as part of the Emery County road system (Lila Canyon Road #126) and is planned to be upgraded to provide better access to the mine as well as other multiple use activities. Emery County plans to realign and improve the Lila Canyon Road #126, from its current condition to an engineered and upgraded condition. Emery County will be responsible for the alignment, construction and maintenance of the road which will total approximately 4.8 miles in length. There are no plans to alter the road that leads from the Horse Canyon Mine to the Lila Canyon Mine although the County may choose to conduct maintenance on the road consistent with its RS2477 designation. After the Lila Canyon Mine opens, the Lila Canyon Road #126 will remain a public road, allowing access by multiple purpose users up to, and ending at, the proposed disturbed area boundary (mine surface facilities area). The Lila Canyon Road #126 up to the mine disturbed area boundary is found under this analysis to be



exempt from regulation according to the State of Utah Coal Mining Rules, R645, et seq. and the Utah Division of Oil, Gas and Mining (UDOGM) July 3, 1995, policy on roads.

## **POLICY**

This analysis implements the July 3, 1995, permitting policy on roads (see Reference #1 of the attached Reference List). In deciding to exempt the Lila Canyon road from regulation, UDOGM herein makes written findings as to whether:

1. The road was properly acquired by the governmental entity and not deeded to avoid regulation;
2. The road is maintained with public funds or in exchange for taxes or fees,
3. The road was constructed in a manner similar to other public roads of the same classification; and
4. Impacts from mining on the road are not significant under Utah's definitions for "affected area" and "surface coal mining operations".

## **ANALYSIS AND FINDINGS**

The following analysis and information is made from existing documents (see attached Reference List) and designated in the text as follows:

1. July 3, 1995, Letter from James Carter to Rick Seibel Re: Permitting of Roads.
2. UtahAmerican Energy, Inc.'s Permit Application Package (PAP),
3. Decision Record, Environmental Assessment UT-070-99-22, Bureau of Land Management.
4. Agreement between Emery County and UtahAmerican Energy Inc., October 19, 1999.
5. February 27, 2001 letter from Emery County to Lowell P. Braxton in regards to Lila Canyon Road.
6. Utah R-645 et seq. Coal Mining Rules, and
7. December 15, 1997 Interior Board of Land Appeals decision (IBLA 94-366).

Analysis #1:

- UtahAmerican Energy Inc.'s (UEI) Lila Canyon Permit Application Package (PAP) was found "Administratively Complete" on February 26, 1999, and is currently still under technical review. The PAP contains a copy of an agreement entered into between UEI and Emery County which recognizes that UEI requires extensive use of the Lila Canyon Road (#126) and that the county will improve the road to meet UEI's needs. The county will perform the upgrade and charge the operator a toll for use of the road.(2)
- The approximate description of the county road to be upgraded is as follows: The road will start from U. S. Highway 6 located in the west half of Section 6, T. 17 S., R. 14 E. and proceed northeasterly to the NE 1/4 NE 1/4 of Section 32, T. 16 S., R. 14 E. The road will then proceed to the NW 1/4 of Section 28 and then to the NE 1/4 NE 1/4 of Section 21. The road finally abuts the Lila Canyon Mine surface facilities in the SW 1/4 of Section 15. The total length of this road would be approximately 4.8 miles.(5)
- Emery County has asserted its claim on the Lila Canyon Road as a county road and has designated it Lila Canyon Road No.126. The assertions were indexed and submitted to the Bureau of Land Management (BLM) on January 8, 1993. (4)
- The surface land ownership for the Lila Canyon Road #126 is the BLM and Utah School and Institutional Trust Lands Administration (SITLA). Emery county will control all necessary rights of way for this road. (5)

Finding #1:

**The Lila Canyon road has historically existed since the 1940's or earlier. Emery County asserts that it had jurisdiction over the road prior to the implementation of the Surface Mining Control and Reclamation Act of 1977 (SMCRA), and has maintained this jurisdiction to the present. The Lila Canyon road right-of-way crosses a mix of federal and SITLA lands. The mixed land ownership that is crossed by the Lila Canyon Road #126 precludes the possibility of UtahAmerican Energy, Inc., a predecessor, or successor from deeding the right-of-way to Emery County to avoid regulation under the UCRP. Thus, the road was properly acquired by the governmental entity and was not deeded to avoid regulation.**

Analysis # 2:

- Emery County is and will be responsible for the alignment, construction (upgrading) and maintenance of the Lila Canyon Road #126. (4) and (5)
- Emery County is responsible for all environmental issues relating to the alignment, and construction (upgrading) of the Lila Canyon road. (4) and (5)
- The maintenance for the Lila Canyon road will be performed by Emery County. Emery County will be responsible for funds to improve and maintain the Lila Canyon Road No.126. It is recognized that UEI and Emery County have an escrow agreement whereby contributions for the construction of the road may be made by UEI, however, it is also acknowledged that said contribution does not in any manner constitute participation by UEI in the design, construction, maintenance or operation of the road. The road will remain a county network road entirely under the authority of Emery County. The maintenance schedule will be the same as other similar Class "B" roads in Emery County. Examples of such roads: Cottonwood Canyon road No. 506 (Trail Mountain Mine), Deer Creek Road No. 304 (Deer Creek Mine), Bear Creek Road No. 305 (Bear Canyon Mine), C Canyon Road in Carbon County (West Ridge Mine). (4) & (5)

Finding # 2:

**Emery County has established its jurisdiction over the alignment, maintenance, construction and environmental aspects of this road. The road is to be maintained with public funds or in exchange for taxes or fees.**

Analysis # 3:

- Emery County supports the responsible development of its natural resources which is consistent with it's Comprehensive Master Plan. Emery County proposes to upgrade the Lila Canyon Road #126 to meet existing county, state and federal specifications. The road will be improved according to the plans and specifications as approved by Johansen & Tuttle Engineering, Inc., as Emery County's engineers of record. Emery County will oversee the upgrade of the Lila Canyon road. (4) & (5)
- The Lila Canyon Road #126 will be built and maintained the same as other similar Class "B" roads in Emery County, such as the Cottonwood Canyon Road No.506, the Deer Creek Road No. 304, and the Bear Creek Road No. 305.

**Finding #3:**

**Emery County will use established professional association and state guidelines to align and surface the road as it does for other Class 'B' roads. Thus, the road was and will be constructed similar to other public roads of the same classification.**

**Analysis # 4:**

- The Lila Canyon Road #126 is and will be a public and multiple purpose road. It is currently used by stockmen, sightseers, hunters, and mineral developers. (3) & (5)
- The Lila Canyon Road #126 is and will be a part of the Emery County road system and public use will not be denied to any portion of the road. (4) and (5)
- In order for a road to be permitted under the UCRP, the road must meet the test of being a "coal mining and reclamation operation", and fall within the UCRP's definition of "roads." Activities occurring on the Lila Canyon Road are similar to activities occurring on public roads of the same classification throughout the State. No coal mining operations are occurring that would require special jurisdiction or regulation of the road under the UCRP. (4), (5) and (6)
- A recent Interior Board of Land Appeals (IBLA) decision states the following, "*We find nothing in section 701(28)(B) of SMCRA, or its legislative history, which expressly provides that transportation facilities, especially ones that carry processed coal to a remote point of sale/use, should generally be considered "surface coal mining operation," subject to regulation under SMCRA... Congress made no specific provision for regulating the transportation of processed coal, even though that activity is itself a "major industrial sector," which encompasses railroads, barges, trucks, and pipelines "that collectively stretch over thousands of miles throughout the nation."... The fact that it did not, strongly indicates that Congress did not intend to regulate the transportation of processed coal under SMCRA, presumably leaving it to regulation pursuant to other Federal and state laws.*" (7)

**Finding #4:**

**The uses of the Lila Canyon Road are considerably greater than the narrow, regulated activities of providing access to coal mining and reclamation operations. In addition, the environmental impacts to the Lila Canyon Road caused by coal truck traffic will not differ from the environmental impacts of other trucks of similar weight operating on this road. The trucks being used for transporting coal are licensed commercial haulers which are legal to operate on public roads of the same classification throughout the state.**

**The mine is not conducting any coal mining and reclamation operation on the public portion of the Lila Canyon Road that would require any special regulation under SMCRA or the UCRP. Impacts from mining on the road are not significant under Utah's definitions for "affected area" and "surface coal mining operations".**

### **CONCLUSION**

The Lila Canyon County Road #126 leading from State Highway 6 up to the Lila Canyon disturbed area boundary does not need to be included in the permitted area for the Horse Canyon Mine, and is thus exempted from the jurisdiction of the Utah Coal Regulatory Program.

UEI has no plans for upgrading, hauling coal or storing equipment on the exiting Lila Canyon Road segment that stretches from the Horse Canyon Mine to Lila Canyon. As such, there is no requirement to permit this road under the Utah Coal Regulatory Program. Should UEI decide to conduct coal mining and reclamation operations that involve the alternative road from Horse Canyon to the Lila Canyon facilities, analysis and findings will need to be made in regards to its permitted status under the Utah Coal Regulatory Program.

sm  
cc: Clyde Borrell, Utah American Energy, Inc.  
Rex Funk, Emery County  
James Fulton, OSM  
O:\007013.HOR\DRAFT\roadfind3.wpd

### **REFERENCE LIST**

1. July 3, 1995 letter from James W. Carter, Director of Utah Division of Oil, Gas, & Mining to Rick Seibel, Regional Director and to Jim Fulton Denver Field Office Division Chief, U.S. Dept. Of Interior, Office of Surface Mining. RE: Utah Section 733 Letter, Permitting of Roads.
2. Utah American Energy, Inc.'s Permit Application Package (PAP),
3. Decision Record, Environmental Assessment UT-070-99-22, Bureau of Land Management.
4. Agreement between Emery County and UtahAmerican Energy Inc., October 19, 1999.
5. February 27, 2001 letter from Emery County to Lowell P. Braxton in regards to Lila Canyon Road.
6. December 15, 1997 Interior Board of Land Appeals decision (IBLA 94-366) finding that a railroad and pipeline used to transport coal from surface mines are not regulated by the federal Surface Mining Control and Reclamation Act.
7. Utah R645 et. seq. Coal Mining Rules, especially definition of the terms "Affected Area", "Coal Mining and Reclamation Operations", and "Road".



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
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July 3, 1995

Rick Seibel, Regional Director  
Jim Fulton, Denver Field Office Division Chief  
U. S. Department of the Interior  
Office of Surface Mining, Western Support Center  
1999 Broadway, Suite 3320  
Denver, Colorado 80202-5733

Re: Utah Section 733 Letter; Permitting of Roads

Gentlemen:

In light of the discussions and correspondence between the Division of Oil, Gas and Mining and the Office of Surface Mining ("OSM") since the informal conference in this matter, I am writing to clarify Utah's policy with regard to the permitting of public roads which may be used for, or related in some way to, coal mining and reclamation activities. Aside from the present disagreement regarding permitting road policy, the Utah Act and implementing regulations are approved by OSM and have been determined to be no less stringent than those of SMCRA. 30 U.S.C. § 1255.

Utah acknowledges that, under its approved definition of "affected area," there exists no blanket exemption from regulation for public roads. Utah recognizes, therefore, that some public roads may be subject to the permitting requirements of the Utah Act. Utah believes, however, that it is best suited to interpret its program, and to decide whether a particular road falls within the definition of "affected area." Since there is little substantive guidance in this area, the State will interpret its program by reference to such authorities as the court's decision *In Re Permanent (Flannery)* as well as conflicting IBLA decisions, such as *Harman Mining* and *W. E. Carter*.

Coal mining permits are required for all roads (public or private) that are constructed, reconstructed or used exclusively for coal mining and reclamation activities. Utah fully recognizes that the quantity of public use of a road is not the exclusive consideration to determine whether it is exempt from regulation. As a result, upon a finding by the State that a road is a bona-fide public road as defined by the approved regulations, Utah will rely on the definition of "surface coal mining operations" under U.C.A. § 40-10-3(18), 30 U.S.C. § 1291(28) and "affected area," U.A.C. Rule R645-100-

200 and 30 C.F.R. §701.5, to determine whether an exemption from regulation is in order. If the operator can demonstrate to the satisfaction of the Utah regulatory authority that a particular road is not included in the definition of "surface coal mining operations," as explained in the pertinent preambles to the publication of the implementing federal rules and as interpreted by the courts, then Utah will not regulate the road.

Thus, a public road which was not constructed, reconstructed or used exclusively for coal mining and reclamation activities; i.e., a multiple use, open access public road, may not be required to be permitted if a) it was properly acquired by the governmental entity (not deeded to avoid regulation), b) it is maintained with public funds or in exchange for taxes or fees, c) it was constructed in a manner similar to other public roads of the same classification, and d) impacts from mining are not significant under the definition of "affected area" and "surface coal mining operations."

Utah recognizes that arrangements sometimes exist between coal companies and the entities which govern public roads used by such companies, whereby maintenance of the road is done in part by the coal companies. Utah believes that such arrangements are not the most important focus of inquiry; rather, coal mining usage and the associated impacts of such usage are the critical area of focus. A public road maintained by a coal operator or permittee should be examined as to:

1. whether the maintenance is occasioned primarily by the environmental impacts of coal mining operations on the road;
2. whether the maintenance is routine and similar to that which would be performed by the county or land management authority absent the agreement of the permittee or operator to do it; and
3. whether the maintenance agreement with the public entity is an arms-length arrangement, such that the essence of the requirement that maintenance be carried out with public funds is met.

For example, if a public land management agency stipulates that, as a condition of a special use permit, the permittee is responsible for maintenance of certain existing roads used by the operator, the fact that such roads are not maintained with public funds for the duration of the operation would not automatically subject those roads to regulation if the effect of mining use on them is relatively slight. Similarly, if state or local governments or public land management agencies require mine operators to construct road improvements or contribute road maintenance funds or services as a



Page 3

R. Seibel, J. Fulton  
"Roads" 733 Action  
July 3, 1995

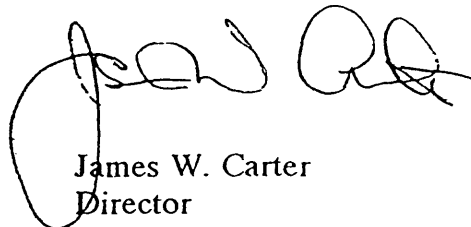
prerequisite for granting the permits and approvals necessary for the mining operation, the stipulation does not, by itself, render all such existing roads subject to regulation under SMCRA.

Utah believes that it, as the regulatory authority, is in the best position to make such determinations, and will decide, based upon these factors, whether such roads are public and whether the coal mining usage and impacts fall within the Utah program definitions of "surface coal mining operations" and "affected area."

We believe that this clarification addresses all of OSM's concerns while allowing the state of Utah to exercise its discretion in interpreting and administering its approved regulatory program. I trust this clarification will provide the basis for OSM to determine that Utah's implementation of its regulatory program is no less effective than the federal program, and that OSM may find the inquiry of the Section 733 letter satisfactorily answered.

We look forward to resolution of this issue and a continuing productive partnership with OSM in implementing Utah's coal regulatory program

Very truly yours,



James W. Carter  
Director

jbe

cc: R. Uram, Director  
Office of Surface Mining  
H:733RESOLLTR

2890/UTU-76614  
2890/UTU-77122  
2820/UTU-76617  
(UT-070)

**FINDING OF NO SIGNIFICANT IMPACT FOR THE UTAHAMERICAN  
LILA CANYON MINE PROJECT AND ACCESS ROAD**

**ENVIRONMENTAL ASSESSMENT UT-070-99-22**

The analysis determined that impacts would occur to the following resources, but that mitigation through design (mitigation built into the proposal) would resolve most concerns:

- Soils
- Hydrology
- Grazing
- Visuals
- Vegetation/habitat
- Wilderness values
- Wildlife

Where impacts could not be totally mitigated the impacts were not major in scope or would be of short duration.

The coal leases that are included in the proposed action have been examined in the following environmental impact statements (EIS) :

- Development of Coal Resources in Central Utah, Final Environmental Impact Statement, Part 2 Site Specific Analysis, US Geological Survey, 1979.
- Uinta-Southwestern Utah Coal Leasing, Final Environmental Impact Statement, BLM, 1981.
- Uinta-Southwestern Utah Coal Region Round Two, Final Environmental Impact Statement, BLM, 1983.

These leases were included in the foreseeable future development scenarios, hence included in the cumulative impacts analysis of proposed mining (all existing leases and future tracts proposed for leasing).

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined the impacts are not expected to be significant and an environmental impact statement is not required.

\_\_\_\_\_  
Tom Rasmussen., Acting Field Manager

\_\_\_\_\_  
Date

2890/UTU-76614  
2890/UTU-77122  
2820/UTU-76617  
(UT-070)

## **DECISION RECORD**

### **ENVIRONMENTAL ASSESSMENT UT-070-99-22**

### **DEVELOPMENT OF THE LILA CANYON PROJECT EMERY COUNTY, UTAH**

#### **DECISION**

It is the decision of the Price Field Manager of the Bureau of Land Management to select Alternative B outlined in the referenced environmental assessment with modification. This record of decision documents the specific components of my decision and the rationale for my decision.

#### **Elements of the Decision**

My decision consists of a number of separate actions designed to meet the purpose and need for this project. Specifically, these actions include:

- Grant right-of-way to UtahAmerican Energy to construct, operate and maintain mine- related surface facilities on the public lands described in the EA administered by the Bureau of Land Management. The right-of-way would encompass approximately 40.0 acres, more or less. The grant would be issued under authority of section 501 (a) of the Federal Land Policy and Management Act of 1976 (90 stat 2776, 43 U.S.C. 1761) The grant would be issued for a term of thirty (30) years, with the right of renewal. The grant would be subject to provisions outlined in the proposed action and specific administrative requirements as outlined in the Code of Federal Regulations(CFR), Chapter 43, part 2800. Since the facilities would be located within the boundaries of a permitted mine, all actions occurring within the permit area would also be under jurisdiction of the Utah Division of Oil, Gas and Mining. *Approval of the right-of-way would be contingent upon mine plan approval.*

- Grant right-of-way to construct, operate and maintain a 46 kV powerline as described in the proposed action. The grant would be issued under authority of section 501 (a) of the Federal Land Policy and Management Act of 1976 (90 stat 2776, 43 U.S.C. 1761.) The grant would be issued for a term of thirty (30) years with the right of renewal. The grant would be subject to provisions outlined in the proposed action and specific administrative requirements as outlined in the Code of Federal Regulations (CFR), Chapter 43, part 2800. *Approval of the right-of-way would be contingent upon mine plan approval.*
- Grant right-of-way to Emery County, Utah to construct, operate and maintain a coal haul access road across public lands as described in the EA. The right-of-way would encompass approximately 30 acres, more or less. The grant would be issued under authority of section 501 (a) of the Federal Land Policy and Management Act of 1976 (90 stat 2776, 43 U.S.C. 1761.) The grant would be issued for a term of thirty (30) years with the right of renewal. The grant would be subject to provisions outlined in the proposed action and specific administrative requirements as outlined in the Code of Federal Regulations (CFR), Chapter 43, part 2800. *Approval of the right-of-way would be contingent upon mine plan approval*

## MITIGATION

As noted in the EA, the stabilization, maintenance and operation plan described in Chapter 2.0 was designed to minimize most impacts to resources within the project area. In addition, best management practices for low impact construction and maintenance measures were incorporated into the proposed action.

However, three issues brought up in scoping that were analyzed in detail resulted in a change to the proposed action by the agency or the recommendation for mitigation. These three issues were grazing, wildlife and cultural resources. Detailed discussions of how these issues were treated are discussed below.

### Grazing

Analysis determined that potential impacts would occur through vehicular collisions with livestock during the life of the operation. To reduce this potential impact, the construction of a livestock fence on both sides of the haul road was incorporated into the *Stabilization, Operation and Maintenance Plan*. In addition, as a result of splitting the grazing allotment through construction of the proposed fence and the road, potential impacts would occur to the grazing utilization of the allotment. Installation and maintenance of livestock water tanks is also incorporated into the referenced plan to lessen these impacts.

These mitigations were placed in the applicant's proposed action as suggestions to minimize the potential for impact to the respective resources. The applicant has not proposed these, but BLM is requiring them as additional mitigation.

### **Cultural Resources**

It was determined that there could be indirect impacts to a site determined to have cultural and historical significance. As such, it was recommended that UEI submit a data recovery plan for the site. This plan will delineate the objectives of recovery, timeframe for analysis and reporting procedures for any resources identified.

In order to approve the plan, BLM would have to enter into a programmatic agreement with the Utah State Historic Preservation Office and other consulting parties. This agreement would then be signed and approved prior to issuing a notice to proceed.

### **Wildlife**

UEI would be required to provide two guzzlers to benefit bighorn sheep populations and habitat because of the potential loss of seeps. These mitigations were placed in the applicant's proposed action as suggestions to minimize the potential for impact to the respective resources. The applicant has not proposed these, but BLM is requiring them as additional mitigation.

## **PUBLIC INVOLVEMENT**

On March 3, 1999, the scoping process was initiated through notification on BLM's electronic notification bulletin board. A thirty (30) day public comment period was held commencing on March 3, 1999 and ending on April 4, 1999. In addition, newspaper articles or notices appeared in four separate issues of the local newspapers in Carbon and Emery Counties, Utah announcing the scoping meetings and soliciting comments. Scoping meetings were held on March 2, 1999, at the Carbon County Courthouse, as well as on March 4, 1999, at the Emery County Courthouse. Scoping identified the following issues that were carried forward in the document:

- Surface subsidence
- Soils, slope stability and rehabilitation stability
- Ground water and surface water
- Livestock grazing
- Vehicular traffic
- Visual resources
- Vegetation potential for loss in species diversity, cover, productivity
- Wilderness values
- Displacement and direct disturbance of wildlife
- Cultural resources

Data was collected, reviewed for adequacy, and assessed for impacts during a 24-month period following the conclusion of public scoping. The EA was submitted for final public review and comment in July 2000.

Comments received prior to the conclusion of the public comment period on August 7, 2000, included those from the U.S. Fish and Wildlife Service and Emery County Road Department. Specific concerns raised by these entities in regards to threatened and endangered species, hydrology, and assorted information consistency errors were addressed and incorporated into an EA revision. The issue of R.S. 2477 assertion raised by the Emery County Road Department was determined to be beyond the scope of this proposed action and EA, and therefore was not incorporated into the EA revision.

Two hundred and thirty five (235) comments were received in response to a request for public comment on the EA issued on August 10, 2000, by the Southern Utah Wilderness Alliance (SUWA). Although the official comment period ended on August 7, 2000, and the vast majority of the comments were received past the closing date, they were reviewed for content and possible incorporation into the EA revision. Two hundred and twenty-one (221) comments were received that reiterated the general SUWA call for opposition to the proposed action and request for preparation of an EIS. Though substantial in number, the common qualitative nature of the comments provided did not necessitate a modification of the EA. Fourteen (14) comments were received that voiced support of the proposed action. Basis of support for the project came more from a negative response to the SUWA alert, rather than review of the proposed action. Again these comments were assertive in nature and therefore did not provide a basis to modify the EA.

SUWA did provide an official written response to the EA on August 16, 2000, voicing opposition to the proposed action and adequacy of the EA process conducted. Specific points presented included the failure of the document to identify significant impacts to the wilderness, wildlife, visual, recreation, and overall landscape of the project area and adjacent lands, as well as the need for an EIS. Though reviewed in great detail, the concerns voiced by SUWA either lacked indepth quantitative analysis; were absent of quantitative support; or were unfounded. Therefore, these concerns did not require a modification to the EA.

## **RATIONALE AND MANAGEMENT CONSIDERATIONS**

The rationale to approve the proposed action was primarily based on the analysis of the environmental impacts presented in the attached environmental assessment. Both the proponent and BLM have incorporated a variety of measures into the proposed action to mitigate potential impacts from the project.

As stated under the objectives for the regulations (43 CFR 2800) governing the issuance of rights-of-way, it is the objective of the Secretary of Interior to grant rights-of-way and temporary use permits covered by the regulations to any qualified individual, business entity, or governmental entity and regulate, control and direct the use of said right-of-way on public lands.

In doing so, the Secretary shall protect the natural resources associated with the public lands, adjacent private or other lands administered by a government agency and prevent unnecessary and undue environmental damage to the lands and resources. In approving this action, the objectives of the Secretary have been met.

In reaching a decision to grant the subject rights-of-way other factors were considered and discussed below:

Through this decision BLM is only approving the use of public lands for proposed mine surface facilities as related to the mining of coal. Approval of the mine plan and the subsequent mining of coal is under jurisdiction of the Office of Surface Mining Reclamation and Enforcement (OSM). The OSM is a cooperating agency in this environmental assessment. As such, under CEQ regulations can base its recommendation for mine plan approval on this document. The actual approval of the mine plan is made by the Assistant Secretary of the Interior. BLM will make approval of the rights-of-way contingent upon UEI having received approval of their mining plan.

Section 523 (a) of the Surface Mining Control and Reclamation Act (SMCRA) (91 Stat, 445) requires the Secretary of the Interior to establish and implement a Federal regulatory program that applies to all surface coal mining operations that take place on Federal lands. The administration of OSM coal mining requirements of the Federal lands program is delegated to Utah's Division of Oil, Gas and Mining (UDOGM).

The Horse Canyon Permit Application Package (ACT/007/013) was approved and a permit issued for reclamation effective on May 6, 1991. The Lila Canyon Permit Application Package (a significant revision of the Horse Canyon Permit Application Package) is being reviewed by the UDOGM (OSM primacy state under SMCRA). The Permit Application Package review includes a determination of completeness, public comments and technical adequacy determination. This review includes concurring agencies of BLM (surface management agency), the State Historic Preservation Officer (SHPO) (cultural and historical) and commenting agencies, the Utah Division of Wildlife Resources (UDWR) and the United States Fish and Wildlife Service (USFWS), Utah Division of Water Resources (UDWR- State Engineer (Water Rights), Division of Environmental Quality (UDEQ) (air quality, water pollution control) and Utah Department of Transportation (UDOT).

The BLM conducts a resource recovery and protection plan review (R2P2/MER), approves the R2P2 and recommends to DOGM approval of this part of the Permit Application Package. This plan spells out in detail how the lessee will mine the coal for maximum economic recovery. BLM approved the Lila Canyon Mine R2P2 on March 2, 2000.



Under 30 CFR 745.13, the Secretary reserved the authority to approve mining plans or modifications thereto, of Federal coal leases and compliance with NEPA. The UDOGM assists OSM in preparing a decision document that is sent to the Assistant Secretary Lands and Minerals for approval of the Federal Mining and Reclamation Plan (M&RP). The Federal M&RP approval will include any special conditions attached by agencies. UtahAmerican has the following valid Federal coal leases: SL-066145 (Issued 6/19/46), SL-066490 (Issued 12/31/47), and SL-069291 (Issued 4/1/50). UtahAmerican also has the following State of Utah coal leases: U-0126947 (issued 12/1/47), U-014217 (issued 2/1/55), and U-014218 (issued 2/1/55). These leases would be mined upon approval of the mine plan. Conveyance of these leases gives the lessee certain rights and obligations to extract the mineral resources in an environmentally sound manner.

Upon approval of the mine plan, a portion of the Turtle Canyon WSA would be undermined. Minimal impacts in the form of minor subsidence is expected. The incorporation of the original IMP (interim management policy) stipulations for actions resulting from mining of the pre-FLPMA coal leases under the Turtle Canyon WSA would be incorporated for all areas deemed to be affected by subsurface actions. No surface facilities authorized by BLM would be located within the WSA and no actions approved by BLM would impact the WSA.

Surface facilities within the proposed mine site and proposed guzzlers would directly disturb eight acres of the natural wilderness value and future designation of the immediate area as wilderness within the Desolation Canyon Inventory Unit 8. (1999 Utah Wilderness Inventory) Due to topography, the direct area of impact would be restricted to 25.12 acres below the canyon face. In addition, 901 acres within the Desolation Canyon and Turtle Canyon inventory units would be undermined by coal extraction. It should be noted that Desolation Canyon Inventory Unit 8 or the Turtle Canyon Inventory Unit 4 are not designated wilderness study areas, but were found to have wilderness characteristics in the 1999 Utah Wilderness Inventory .

The proposed action meets Wilderness Interim Management Policy objectives. No action is proposed that would impair the wilderness character of the established WSA.

The proposed action is in conformance with the existing BLM land use plan for the area. It also is consistent with the Department of the Interior and BLM Interim Management Guidance for wilderness inventory units. UtahAmerican holds valid existing rights that must be recognized.

## **CONFORMANCE WITH THE LAND USE PLAN AND CONSISTENCY WITH OTHER LAWS**

### **Land Use Plan**

The proposed action is in conformance with the objectives and recommendations of the Price River Resource Area Management Framework Plan approved in 1983, as amended.

### **Consistency with Existing Laws**

This decision is consistent with Federal, state, and local laws imposed for the protection of the environment. Specifically:

National Environmental Policy Act  
Federal Land Policy and Management Act  
Endangered Species Act  
Surface Mining Control and Reclamation Act  
Clean Water Act  
National Historic and Preservation Act  
Migratory Bird Treaty Act  
Bald Eagle Protection Act

## **IMPLEMENTATION AND APPEAL RIGHTS**

Implementation may begin upon approval of the mine plan for the project. The rights granted through the right-of-way become effective immediately following approval of the right-of-way.

Within 30 days of receipt of this decision, you have the right of appeal to the Board of Land Appeals, Office of the Secretary, in accordance with the regulations at 43 CFR 4.4. If an appeal is taken, you must follow the procedures outlined in the enclosed Form 1842-1, Information on Taking Appeals to the Board of Land Appeals. The appellant has the burden of showing that the decision appealed from is in error.

---

Tom Rasmussen, Acting Field Manager

---

Date

Enclosure:  
Form 1842-1

**AGREEMENT**

This agreement made and entered into this 19 day of October, 1999, by and between Emery County, a body corporate and politic (County), and UtahAmerican Energy, Inc. (UEI).

WHEREAS, there is an existing road in Emery County known as Lila Canyon Road (#126) and

WHEREAS, UEI requires extensive use of said road, and

WHEREAS, due to said extensive use, said road must be improved for the health, safety and welfare of the citizens of County as well as others who may have occasion to use said road,

NOW THEREFORE, be it agreed as follows:

1. The parties hereto agree and acknowledge that presently the southwest portion of the road known as Lila Canyon Road is a County road. Said County road runs from State Route 6 in a Northeasterly direction for approximately 2.63 miles to a presently existing corral. Thereafter the road is an unimproved RS 2477 roadway under assertion by Emery County with the Bureau of Land Management (BLM) and identified as assertion #144 lower Lila point, #155 Lila Canyon and #326 Lila Canyon Lila Pt. The Assertions were indexed and submitted to BLM Jan. 8, 1993.
2. That Emery County will improve the Lila Canyon Road according to the plans and specifications as approved by Johansen & Tuttle Engineering, Inc., as Emery County's engineers of record.
3. The parties shall enter into an Escrow Agreement. Johansen & Tuttle Engineering, Inc. estimates for such improvements are shown in attachment A. Estimates for each phase shall be carefully reviewed and brought up to date before funds are put in escrow prior to initiation of the individual phases. UEI and Emery County shall jointly agree in writing before beginning any specific phase. No phase shall commence before the required funds for that specific phase is in escrow. Each phase once initiated shall be completed.
4. Insofar as the road will be used by the public for access to private and public lands and by UEI for access and construction of the Lila Canyon mine, and insofar as improvement of the Roadway would not otherwise be a budgeted item for Emery County given other priorities for highway maintenance or reconstruction, it has been agreed between Emery County and UEI that the total cost of the reconstruction of the county road shall be the responsibility of UEI. Upon satisfactory completion by both parties of each phase, any remaining unspent funds in escrow shall remain sole property of UEI.

5. UEI will assist the County in obtaining additional road ROW's as required. The newly applied for BLM, ROW #UTU- 76617, now in the EA process will, be issued and assigned to Emery County.
6. Emery County shall make available at no cost, any native rock or dirt materials available on County or otherwise permitted local properties which might be suitable for road construction.
7. UEI shall acquire an Encroachment Permit from Emery County and comply with the conditions as set forth in the permit. It is agreed that when UEI is operating any coal mining or reclamation activity within 100' of a County road that UEI shall protect the public from normal hazards associated with said activity by installing a 6' chain link fence between the public and mine activity or facility situated within the 100' distance from the road unless as otherwise agreed to by Emery County through its Road Encroachment Ordinance 8-7-85A or as amended.
8. It is further agreed by Emery County that in consideration of UEI's contributions, Emery County agrees and acknowledges that said contribution does not in any manner constitute participation by UEI in the design, construction, maintenance or operation of the road except as otherwise agreed by both parties. The road will remain a County network road entirely under authority of Emery County. Furthermore, Emery County agrees to indemnify and hold UEI, its owners, directors, officers, employees, and agents (indemnitees) harmless of any liability, cost or expense, including defense costs, from any claim, demand or action which may be brought alleging negligence or responsibility on the part of indemnitees in the design or construction of the roadway, including any claim or demand which may be made by UEI employees. This obligation to indemnify and hold harmless commences immediately and includes the period of time during which construction is taking place.

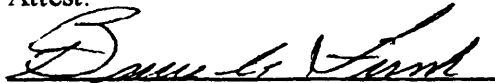
Emery County agrees that it will fully cooperate with UEI should any explanation of this expenditure by UEI be required by any of the commissions which regulate UEI operations and/or any government agency which may inquire or investigate into the expenditure of UEI.

EMERY COUNTY



Commission Chairman

Attest:



Emery County Clerk

Subscribed and sworn to before me this 19th day of October, 1999.

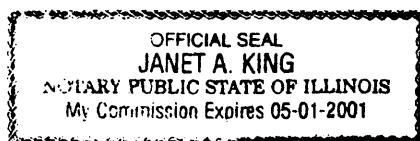


Carol D. Cox  
Notary Public

UtahAmerican Energy, Inc.

H. H. Hayden President  
Hershiel H. Hayden, President

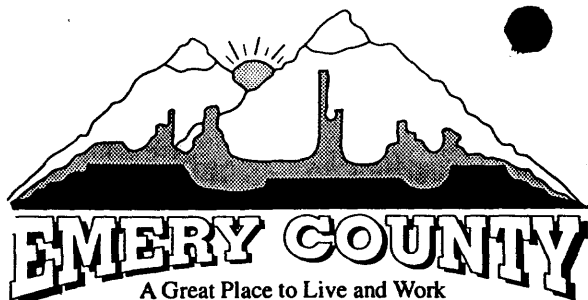
Subscribed and sworn to before me this 26th day of October, 1999.



Janet A. King  
Notary Public

## ATTACHMENT "A"

Phase	Description	Estimated Cost
Phase I	Engineering and Design of the Lila Canyon road complete, ready for bid.	\$150,000
Phase II	Construction of gravel roadways. Includes acceleration & deceleration lanes on State Hwy 6.	To be determined by Phase I studies.
Phase III	Paving of the western segment of the Lila Canyon road.	To be determined by Phase I studies.



LILA Cyn  
mine file

cc [unclear] vs  
3/16/01  
Pam  
3/15/01

Road Department

February 27, 2001

RECEIVED

MAR 05 2001

Lowell P. Braxton  
Division of Oil, Gas, and Mining  
1594 West North Temple, STE 1210  
P. O. 145801  
Salt Lake City, Utah 84114-5801

DIVISION OF  
OIL, GAS AND MINING

*Incinerator*  
*C/007/013*  
*Copy Daron*

Dear Mr. Braxton:

The following information should answer certain questions posed to Melvin Coonrod, Resident Agent UEI, by Daron Haddock on November 29, 2000 regarding the proposed Lila Canyon Road (#126) improvements.

Emery County recognizes that there are significant natural resources located on its State School Trust and Federal Public Lands. Emery County supports the responsible development of its natural resources which is consistent with Emery County's Comprehensive Master Plan and the multiple use ideals held by its people. Our natural resources include, but are not limited to, mineral deposits including coal, oil and natural gas, timber, water, grazing, recreation, wildlife, cultural and scenic which are all of significant social and economic benefit to Emery County, the State of Utah and the United States in terms of employment, tax revenue, mineral royalties and recreational opportunities.

I will respond to the questions in the order set forth in Mr. Haddock's letter (November 29, 2000).

**A. A legal description of the road right of way.**

The approximate description of the proposed county road is as follows:  
The road will start from U.S. Highway 6 located in the west half of Section 6, T. 17 S., R. 14 E. and proceed northeasterly to the NE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Section 32, T. 16 S., R. 14 E. The road will then proceed to the NW  $\frac{1}{4}$  of Section 28 and then to the NE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Section 21. The road finally enters the Lila Canyon Mine surface facilities in the SW  $\frac{1}{4}$  of Section 15. The total length of this road would be approximately 4.8 miles.

**B. Name or numerical designation for the road.**

Lila Canyon Road No.126

**C. Land ownership for the road right of way.**

Lila Canyon Road No.126 is currently situated on Federal and State Properties. Emery County will control all necessary right of ways for this road.

**D. Name of the entity responsible for the alignment, construction, maintenance and liability for the road.**

Emery County will be responsible for the alignment, construction, maintenance and liability for the road.

- E. Name of the entity responsible for environmental permitting of the road.**  
Emery County will be ultimately responsible for obtaining environmental permitting for the road.
- F. Construction standard for the road and the entity responsible for attaining this standard.**  
Emery County will design the Lila Canyon Road No.126 according to existing county, state and federal specifications.
- G. Maintenance schedule for the road.**  
The maintenance schedule for the road will be the same as other similar Class "B" roads in Emery County.
- H. Source of funds for construction and/or maintenance of the road.**  
Emery County will be responsible for funds to improve and maintain the Lila Canyon Road No.126.
- I. Examples of similar roads in Carbon and Emery Counties.**  
Cottonwood Canyon road No.506 (Trail Mountain), Deer Creek Road No.304, Bear Creek Road No.305 (Co-Op), C Canyon Road Carbon County.
- J. Will Utah American Energy, Inc. have the ability to deny use of the road?**  
No! The Lila Canyon Road No.126 will continue as a multiple use public road under the authority of Emery County providing access to stockmen, recreationalists, minerals exploration and development, hunters and the general public.

I hope that this information is sufficient for your purposes.

Sincerely,



Rex Funk,  
Road Supervisor

RF/lrs

attachment

cc Commissioners  
Val Payne, Public Lands Director  
Craig Johansen, Johansen & Tuttle Engineering  
Melvin Coonrod, EIS





# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-6340

801-358-3940 (Fax)

801-538-7223 (TDD)

November 29, 2000

Melvin Coonrod, Resident Agent  
UtahAmerican Energy, Inc  
Environmental Industrial Service.  
31 North Main Street  
Helper, Utah 84501

Re: Lila Canyon Road, UtahAmerican Energy, Inc., Horse Canyon Mine, C/007/013-  
SR98(1), Outgoing File

Dear Mr. Coonrod:

As you know the Division has been reviewing your application to permit mine facilities in the Lila Canyon area. A number of questions have been asked regarding the transportation and access routes to the proposed Lila Canyon facilities. Your application indicates that access will be by an existing County road, although very little information is known about this road or is provided in the application. In order for us to better understand the status of the transportation and access corridors and to determine whether or not the road would require permitting action, we need additional information. The following information is typical of what we have asked other mines to provide and will help us in making the required findings. Please provide the information as completely as possible.

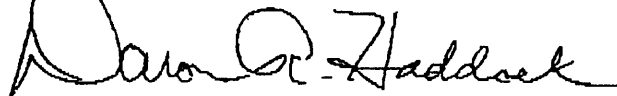
- A. A legal description of the road right-of-way.
- B. Name or numerical designation for the road.
- C. Land ownership for the road/right-of-way.
- D. Name of the entity responsible for the alignment, construction, maintenance and liability for the road.
- E. Name of the entity responsible for environmental permitting of the road.
- F. Construction standard for the road, and the entity responsible for attaining this standard.
- G. Maintenance schedule for the road.
- H. Source of funds for construction and/or maintenance of the road.

Page 2  
Melvin Coonrod  
C/007/013-SR98(1)  
November 29, 2000

- I. Examples of similar roads in Carbon and Emery Counties.
- J. Will UtahAmerican Energy, Inc. have the ability to deny use of the road?  
If yes, please provide a legal description for the portions of the road that are subject to exclusive use by UtahAmerican Energy, Inc. Also, please provide the basis for the exclusive use.

Thank you for your assistance in this matter.

Sincerely,



Daron R. Haddock  
Permit Supervisor

drh/sm

cc: Clyde Borrell, VP, UtahAmerican Energy, Inc.  
Price Field Office

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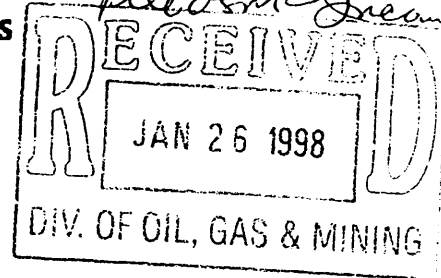


IN REPLY REFER TO:

## United States Department of the Interior

## OFFICE OF HEARINGS AND APPEALS

Interior Board of Land Appeals  
4015 Wilson Boulevard  
Arlington, Virginia 22203

CITIZENS COAL COUNCIL, ET AL.

IBLA 94-366

Decided December 15, 1997

Appeal from Decisions of the Acting Director, Office of Surface Mining Reclamation and Enforcement, finding that a railroad and a pipeline, used to transport coal from surface mines, are not regulated by the Federal surface coal mining act. 94-16-Johnson/Bird.

Affirmed.

1. Surface Mining Control and Reclamation Act of 1977:  
Applicability: Generally

The OSM properly concluded that a railroad and a pipeline, used solely to transport coal from surface mines to remote electrical generating stations, are not "surface coal mining operations," within the meaning of section 701(28)(B) of the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. § 1291(28)(B) (1994), and are therefore not subject to the requirements of that Act.

APPEARANCES: Walton D. Morris, Jr., Esq., Charlottesville, Virginia, for Appellants; James R. Bird, Esq., and Benjamin J. Vernia, Esq., Washington, DC, for the Peabody Western Coal Company; Jack D. Palma, II, P.C., Esq., Cheyenne, Wyoming, and Donald B. Atkins, Esq., Tulsa, Oklahoma, for Black Mesa Pipeline, Inc.; John B. Weldon, Jr., Esq., and Stephen E. Crofton, Esq., Phoenix, Arizona, for the Salt River Project Agricultural Improvement and Power District; Jon K. Johnson, Esq., Office of the Regional Solicitor, U.S. Department of the Interior, Lakewood, Colorado, for the Office of Surface Mining Reclamation and Enforcement.

## OPINION BY ADMINISTRATIVE JUDGE KELLY

The Citizens Coal Council, the Water Information Network, and the Diné-Hopi Alliance (collectively, Appellants) have appealed from two identical Decisions of the Acting Director, Office of Surface Mining Reclamation and Enforcement (OSM), dated February 25, 1994. Responding to Appellants' citizens complaints, OSM found that two transportation facilities associated with the Black Mesa/Kayenta Mines are not "surface coal mining operations" governed by the Surface Mining Control and Reclamation

IBLA 94-366

Act of 1977 (SMCRA), as amended, 30 U.S.C. §§ 1201-1328 (1994), and are therefore not subject to the permitting and other requirements of SMCRA.

The two mines are owned and operated by the Peabody Western Coal Company (PWCC), and are located in northeastern Arizona within the Navajo/Hopi Indian Reservations. The transportation facilities are a railroad, known as the Black Mesa and Lake Powell (BMLP) Railroad, which is owned (along with others) and operated by the Salt River Project Agricultural Improvement and Power District (SRP), and a coal slurry pipeline, which is owned and operated by Black Mesa Pipeline, Inc. (BMP). The PWCC, BMP, and SRP have all filed answers to Appellants' Statement of Reasons for Appeal (SOR) and all are joined as proper parties to this appeal.

The pipeline at issue is 273 miles long and is buried for most of its length. It carries coal from the Black Mesa Mine to the Mohave Generating Station, in Laughlin, Nevada. Coal extracted at the mine is crushed by PWCC and placed on a conveyor system, which is owned by PWCC, BMP, and the Mohave Generating Station, and operated by PWCC. That system carries the coal to a preparation plant, which is owned and operated by BMP, where it is further crushed and water is added to create a coal slurry. The conveyor system and preparation plant are all within the area proposed by PWCC for permitting under SMCRA as part of the Black Mesa Mine. The proposed mine permit would cover the conveyor system. The BMP has applied for a separate permit for the plant. Following preparation, the coal slurry leaves the plant by way of BMP's pipeline, traversing a portion of the proposed mine permit area and continuing on to the electrical generating station in Laughlin, Nevada, where it is used for fuel.

The railroad at issue is 83 miles long, and carries coal from the Kayenta Mine to the Navajo Generating Station, in Page, Arizona. Coal extracted at the mine is crushed by PWCC and placed on a conveyor system, which is owned and operated by PWCC. That system carries the coal to silos and a loadout facility, which are also owned by PWCC. The conveyor system, silos, and loadout facility are all within the permit area for the Kayenta Mine and covered by the mine permit. At the loadout facility, the coal is loaded into cars and transported by SRP's railroad to the electrical generating station in Page, Arizona, where it is used for fuel.

Title to the coal passes from PWCC to the electrical generating station either at the station (Black Mesa Mine) or at the loadout facility (Kayenta Mine). Further, the railroad and the pipeline are operated for the sole purpose of transporting all of the coal produced by PWCC at each mine to the respective electrical generating station. Throughout the 17-year operation of the mines from the enactment of SMCRA in 1977 to the 1994 Decisions at issue here, neither transportation facility has ever been permitted or otherwise authorized to operate under that Act.

In her Decisions, the Acting Director concluded that the railroad and pipeline are not "surface coal mining operations" regulated by SMCRA. She

IBLA 94-366

concluded that the applicable statutory standard is whether they can be considered facilities "resulting from or incident to" FWOC's surface coal mining activities at the Black Mesa/Kayenta Mines, under section 701(28)(B) of SMRA, 30 U.S.C. § 1291(28)(B) (1994), as that standard is explicated in the preamble to 1988 final rulemaking, 53 Fed. Reg. 47377 (Nov. 22, 1988). (Decision at 1-2, 3.) Applying this standard, the Acting Director held that neither the railroad nor the pipeline can be considered to result from or be incident to FWOC's mining activities since a substantial portion of each facility is located well beyond the minesite, the primary function of the facility is to supply coal to a power plant, and, because the facility is not owned or operated by FWOC, it is more economically dependent on the generating station than on the mine. (Decision at 3; *see id.* at 4, 5.) The Acting Director also noted that weighing against SMRA regulation is the fact that neither the statute nor the regulations explicitly cover either facility and that regulating them at this point would "reverse long-standing decisions by [OSM] which have been relied upon" by the operator of the facility. *Id.* at 3, 5.

*and present the argument*

In their SOR, Appellants contend that the railroad and pipeline should be considered "surface coal mining operations," within the meaning of section 701(28)(B) of SMRA, 30 U.S.C. § 1291(28)(B) (1994), because they are "facilities 'resulting from or incident to' surface coal mines that [FWOC] operates on Navajo lands." (SOR at 2 (quoting from 30 U.S.C. § 1291(28)(B) (1994)).) They argue that this is so because each facility is "functionally integrated with the mine it serves because it provides the sole means of transporting coal from the mine site directly to the mine's only customer" and serves no other mine, and each is "economically dependent upon the mine they serve because the mine is their sole source of cargo, and thus presumably their sole source of revenue." (SOR at 29, 30.) Appellants distinguish this situation from that of a common carrier, noting that each transportation facility and its respective mine and power plant are a "closed, unified industrial operation." *Id.* at 14, 16. They argue that to find that the facilities at issue here do not result from or are not incident to the mines, would exclude all such facilities from SMRA jurisdiction. Since the railroad and pipeline are section 701(28)(B) facilities, Appellants assert that OSM must require FWOC to either amend its existing or proposed mine permits to encompass them or obtain separate permits for them. Failing such amendment or permit, OSM must preclude any further operation of these facilities.

(1) Section 701(28)(A) of SMRA provides that "surface mining operations" are "activities conducted on the surface of lands in connection with a surface coal mine," including "excavation \* \* \*, and \* \* \* chemical or physical processing, and the cleaning, concentrating, or other processing or preparation, [and] loading of coal for interstate commerce at or near the mine site." 30 U.S.C. § 1291(28)(A) (1994). Subsection B further provides that such operations include the "areas upon which such activities occur or where such activities disturb the natural land surface." It also states that

IBLA 94-366

[s]uch areas shall also include any adjacent land the use of which is incidental to any such activities, all lands affected by the construction of new roads or the improvement or use of existing roads to gain access to the site of such activities and for haulage, and excavations, workings, impoundments, dams, ventilation shafts, entryways, refuse banks, dumps, stockpiles, overburden piles, spoil banks, culm banks, tailings, holes or depressions, repair areas, storage areas, processing areas, shipping areas and other areas upon which are sited structures, facilities, or other property or materials on the surface, resulting from or incident to such activities[.]

30 U.S.C. § 1291(28)(B) (1994) (emphasis added). In enacting SMRA, Congress stated that "surface coal mining operations" thus include "all roads, facilities[,] structures, property, and materials on the surface resulting from or incident to [surface coal mining] activities, such as refuse banks, dumps, culm banks, impoundments and processing wastes." S. Rep. No. 128, 95th Cong., 1st Sess. 98 (1977) (emphasis added).

We find nothing in section 701(28)(B) of SMRA, or its legislative history, which expressly provides that transportation facilities, especially ones that carry processed coal to a remote point of sale/use, should generally be considered "surface coal mining operations," subject to regulation under SMRA. Rather, the statute indicates that the point at which the coal is loaded for shipment, following all processing/preparation necessary for marketing and associated transportation, constitutes the last stage of mining and related operations subject to SMRA, either under section 701(28)(A) or (B). See Ann Lorentz Coal Co. v. OSM, 79 IBLA 34, 43, 91 Interior Dec. 108, 113 (1984). Congress made no specific provision for regulating the transportation of processed coal, even though that activity is itself a "major industrial sector," which encompasses railroads, barges, trucks, and pipelines "that collectively stretch over thousands of miles throughout the nation." (PWOC Answer at 2, 9.) The fact that it did not, strongly indicates that Congress did not intend to regulate the transportation of processed coal under SMRA, presumably leaving it to regulation pursuant to other federal and state laws.

We turn to SMRA's implementing regulations. When the Department first promulgated regulations in 1979 designed to permanently govern surface coal mining activities, it established general standards for constructing and maintaining transportation facilities other than roads, which were said to include "[r]ailroad loops, spurs, sidings, surface conveyor systems, chutes, aerial tramways, or other transportation facilities." 30 C.F.R. § 816.180 (1979). The Department explained in the preamble to the final rulemaking that the regulation was intended to cover transportation facilities "incident to coal mining operations," which are required for the "[m]ovement of coal, equipment and personnel within the mine plan area." 44 Fed. Reg. 15260, 15261 (Mar. 13, 1979) (emphasis added).

IBLA 94-366

In 1983, the Department defined what constitutes facilities resulting from or incident to surface coal mining activities, termed "support facilities," requiring that they be operated "in accordance with a permit issued for the mine or coal preparation [plant] to which [they are] incident or from which [their] operation results." 30 C.F.R. §§ 701.5 and 816.181 (1983). It said that such facilities "may" include "railroads, surface conveyor systems, chutes, aerial tramways, or other transportation facilities." *Id.* However, the Department also stated, at the end of the regulation, that "[r]esulting from or incident to" a [surface coal mining] activity connotes an element of proximity to that activity." *Id.* Further, in the preamble to the final rulemaking, the Department indicated that whether the enumerated transportation facilities could be considered support facilities hinged on whether they did, in fact, result from or were incident to such activities. See 48 Fed. Reg. 20396 (May 5, 1983) ("(T)o be regulated under Section 701(28)(B) a facility must result from or be incident to an activity regulated under Section 701(28)(A)"); National Wildlife Federation (NWF) v. Hodel, 839 F.2d 694, 746 n.80 (D.C. Cir. 1988).

Moreover, the Department particularly stated that it would interpret the regulation "to include all facilities located up to the point of load-out of coal for interstate transport." 48 Fed. Reg. 20397 (May 5, 1983) (emphasis added). Thus, where coal was transported by rail, the regulation "would extend to the loadout facility located at or near the mine site from which run of mine coal is conveyed or trucked to the rail line and loaded," and this same principle would also apply in the case of other modes of transportation, such as trucks, barges, and pipelines. *Id.* This regulation would have clearly excluded that portion of the railroad and pipeline at issue here, which are located beyond the loadout point.

In 1988, the Department dropped that regulatory definition, leaving the requirement in 30 C.F.R. § 816.181 that "support facilities" be operated under the permit for the individual mine or coal preparation plant to which they were incident or from which their operation resulted. It rejected any categorical exclusion or inclusion in favor of a case-by-case determination of what facilities can properly be regulated under SMRA, and declined to define what facilities result from or are incident to mining activities. See 53 Fed. Reg. 47380, 47382 (Nov. 22, 1988).

However, in the preamble which accompanied its 1988 rulemaking, the Department provided that OSM would address three factors when deciding whether a facility is properly considered to result from or be incident to surface coal mining activities: (1) whether the facility is geographically proximate to the producing mine; (2) whether the facility is functionally tied to the particular mine in question; and (3) whether the facility is economically dependent upon that particular mine. 53 Fed. Reg. 47379, 47381 (Nov. 22, 1988). The Department noted that the factors of geographic proximity and function had been endorsed by the circuit court in NWF, when it reviewed the propriety of the prior "support facilities" definition in 30 C.F.R. § 701.5 (1983). See 839 F.2d at 765-66.

IBLA 94-366

*Interpreted as*

Appellants assert that this case should be decided by applying the above three factors. (SOR at 8.) The other parties to the case likewise utilize those criteria. See Decision at 1, 3; OSM Answer at 9-10; FWCC Answer at 18; SRP Answer at 14; BHP Answer at 10.

We conclude that, even applying the criteria outlined in the 1988 preamble but never formally adopted by the Department, the railroad and pipeline at issue here do not constitute facilities "resulting from or incident to" regulated surface coal mining activities, within the meaning of section 701(28)(B) of SMRA.

We agree with OSM that both the railroad and pipeline are not geographically proximate to the surface coal mining activities at issue here, since most of those transportation facilities are located many miles from the Black Mesa/Kayenta Mines. Indeed, 80 percent of the pipeline and railroad is located more than 54 and 16 miles, respectively, from the 2 mines. These facilities do not become geographically proximate because they originate at and traverse a small portion of the mine area that is currently permitted or proposed for permitting. (SOR at 11, 18.) To so hold would render all transportation facilities proximate unless the coal is first transported outside the mine area by other means and then placed into the facility. We do not think this is what the Department intended. Nor is geographic proximity affected by the particular use made of the facilities or, generally, the functional and economic concerns that animate the other criteria. Id.

Next, we conclude that, in order to be considered to "result[] from or (be) incident to" surface coal mining activities which are themselves subject to SMRA regulation under section 701(28)(A) of SMRA, within the meaning of 30 U.S.C. § 1291(28)(B) (1994), facilities must be functionally and economically tied to regulated surface coal mining activities, and thus be justifiably also subject to such regulation. This does not mean that the facilities must be actually "involved in excavation, processing or loading coal," i.e., section 701(28)(A) activity. (SRP Answer at 16.) Rather, there must be a direct and meaningful connection to such activity. See United States v. Devil's Hole, Inc., 747 F.2d 895, 897-98 (3d Cir. 1984) (mining waste piles used to recover anthracite silt - "incidental facility"); Paul F. Kohn, 120 IBLA 1, 30-32, 98 Interior Dec. 231, 246-47 (1991) (natural gas pipeline section relocated from mine area - "incidental facility"). We think that is the clear intent of Congress in expanding the definition of "surface coal mining operations" to include "incidental facilities" and also of the Department when it adopted the relevant criteria. See NWP, 839 F.2d at 743, 744; 53 Fed. Reg. 47379 (Nov. 22, 1988); 48 Fed. Reg. 20393 (May 5, 1983). Indeed, to hold otherwise would bring facilities within the ambit of SMRA regulation that are not somehow functionally and/or economically tied to regulated surface coal mining activity. We find nothing to indicate that Congress and the Department intended to do so.



IBLA 94-366

At the present time, the railroad and pipeline are functionally tied to and economically dependent on the surface coal mining activities at issue here in the limited sense that they currently serve only to transport all of the coal from the Black Mesa/Kayenta Mines to the final point of use and derive all of their revenues from that service. However, there is no evidence that the two facilities are otherwise functionally tied, in any way, to the actual operation of or the conducting of any particular surface coal mining activity regulated by SMRA.

As the circuit court instructed in *NWE*, 839 F.2d at 745, the phrase "resulting from or incident to" requires some type of proximate causation, "[o]therwise, every support facility that could be considered a 'but for' result of a surface coal mining operation would be subject to SMRA regulation." We conclude that the railroad and pipeline are not functionally tied to any regulated surface coal mining activity, other than by the mere fact that they transport the final product derived from such activity to market. That fact alone does not render the facilities subject to SMRA regulation, since it would encompass any and all transportation facilities. There is simply no evidence that Congress and the Department intended to apply the "incidental facilities" definition of "surface coal mining operations" in such a broad fashion.

Therefore, we conclude that the Acting Director, OSM, properly held that the BMLP Railroad and BMLP's coal slurry pipeline are not "surface coal mining operations," within the meaning of section 701(28)(B) of SMRA, and are not subject to the permitting and other requirements of the Act.

To the extent Appellants have raised other arguments not specifically addressed herein, they have been considered and rejected.

Accordingly, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 C.F.R. § 4.1, the Decisions appealed from are affirmed.

  
John H. Kelly  
Administrative Judge

I concur:

  
R.W. Hallen  
Administrative Judge

**BOOK CLIFFS AREA  
CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)**

**For**

**HORSE CANYON MINE  
LILA CANYON SIGNIFICANT REVISION TO THE HORSE CANYON MINE  
C/007/013**

**In**

**CARBON AND EMERY COUNTIES, UTAH**

**July 19, 2001**

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## I INTRODUCTION

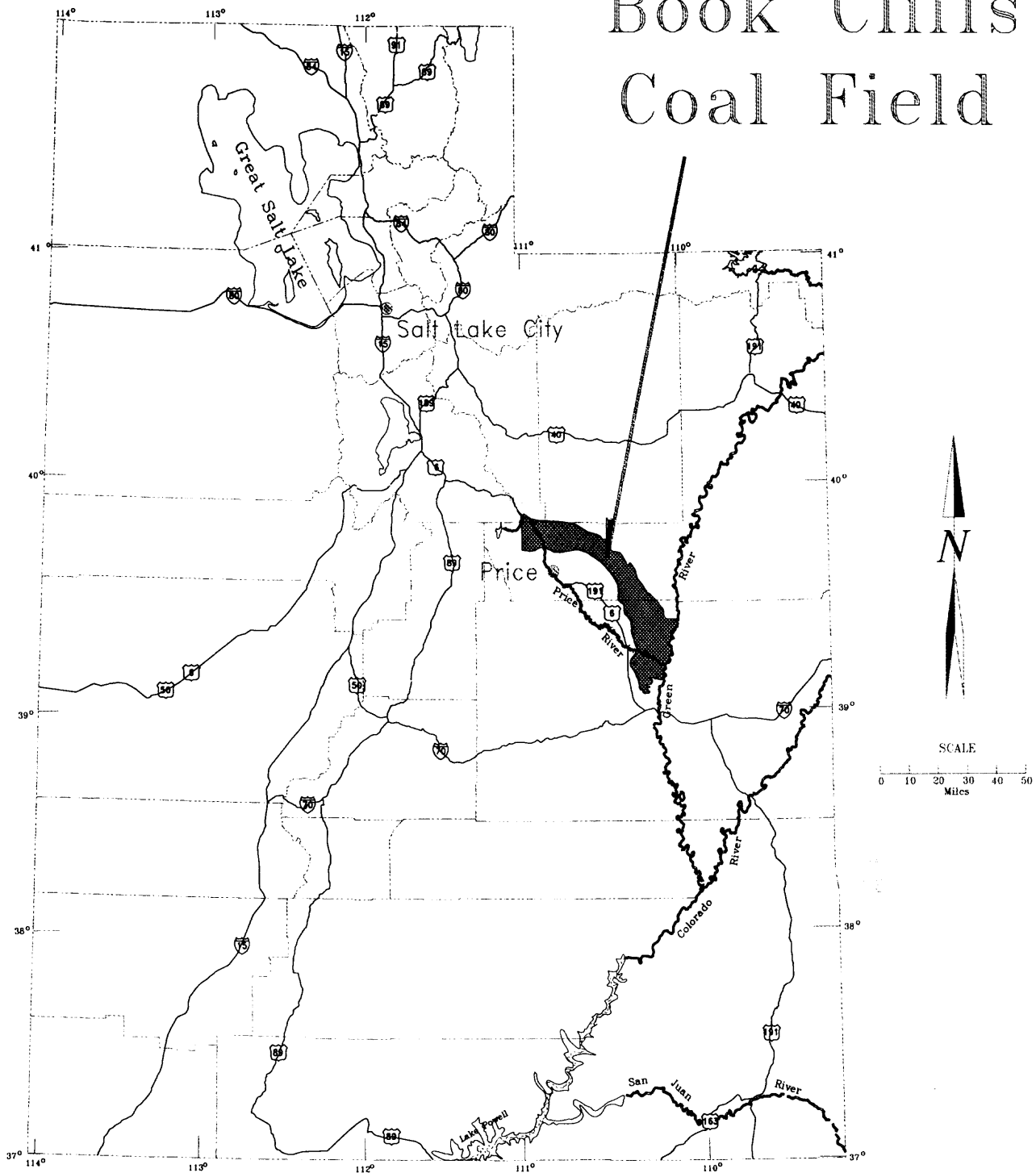
The Horse Canyon Mine and the proposed Lila Canyon Mine, a significant revision to the Horse Canyon mine permit, are located approximately 30 miles east of Price, Utah in the Book Cliffs Coal Field (Figure 1). The Book Cliffs form a rugged escarpment (Figure 2) that faces south and southwest and separates the Uintah Basin from the San Rafael Swell.

Elevations along the Book Cliffs range from approximately 5,000 to 10,000 feet. Steep, narrow canyons and high peaks are characteristic. Because of the rugged topography, land uses are generally limited to wildlife habitat, rangeland, and recreation, but timber is harvested in some areas. A large portion of the surface area is public land managed by the Bureau of Land Management (BLM).

The Book Cliffs area is classified as mid-latitude steppe to semi-arid desert. The climate is characterized by warm, moist springs and summers and by cold, dry winters. Precipitation varies from 20 inches at the highest elevations to 8 inches along the Price River downstream of the town of Wellington. Mean annual precipitation is about 12 inches, with most precipitation occurring during the late summer and early fall. Temperatures range from summer highs in the 90's to below zero during the winter months.

BOOK CLIFFS AREA

# Book Cliffs Coal Field



**Figure 1 – Location of the Book Cliffs Coal Field in the State of Utah**



**Figure 2 Book Cliff's escarpment. Looking southwest from atop the Book Cliffs escarpment above the proposed Lila Canyon Mine.**

Vegetation varies from the sagebrush/grass community type at lower elevations to pinyon/juniper, sagebrush, and saltbush/Salina wild rye at higher elevations. Most of the Lila Canyon area is dominated by the pinyon/juniper community. Cliff-forming rock outcrops have little or no vegetation, and the Lila Canyon area doesn't have the deep, protected canyons with more mesic vegetation found at other places along the Book Cliffs, such as at the West Ridge Mine to the north. The land is mainly used for wildlife habitat and livestock grazing.

Outcropping rocks of the Book Cliffs range from Upper Cretaceous to Quaternary in age. The rock record reflects an overall regressive sequence from marine (Mancos Shale) on the valley floor and at the base of the cliffs, up through littoral and lagoonal (Star Point Sandstone and lower Blackhawk Formation), to fluvial (upper Blackhawk Formation, Castlegate Sandstone, Price River Formation and North Horn Formation), and lacustrine (Flagstaff Formation and Green River Formation) depositional environments. The Colton Formation is a fluvial-deltaic sequence separating the Flagstaff and Green River deposits. . The Blackhawk Formation is the major coal-bearing unit within the Book Cliffs Coal Field. Members of the Blackhawk Formation were deposited in an oscillating regressive seaway during the Cretaceous Period.

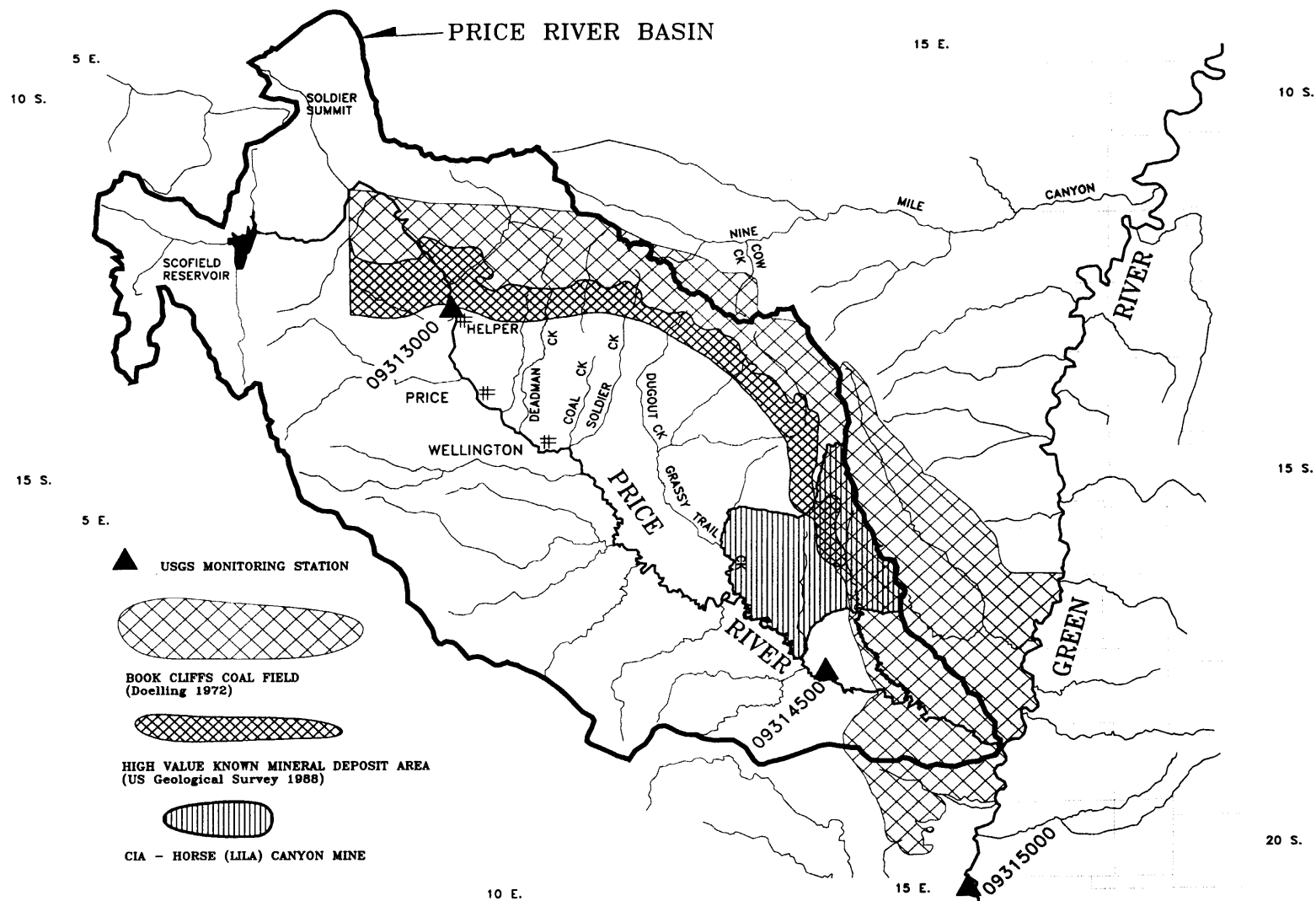
Surface runoff from the Book Cliffs flows into the Price River drainage basin of south-central Utah (Figure 3). Several rivers flow into the Price River including the White River, Willow Creek, Coal Creek, Grassy Trail Creek and Horse Canyon Creek. The Price River flows southeasterly and joins the Green River approximately 15 miles north of the town of Green River, Utah. Water quality is good in the mountainous headwater tributaries, but deteriorates rapidly after the river leaves Price Canyon and flows across the Mancos Shale. The Mancos typically has low permeability, is easily eroded, and contains large quantities of soluble salts. Total dissolved solids (TDS) levels of 3,000 mg/L and sulfate concentrations over 1,000 mg/L are not uncommon in the lower reaches of the Price River.

This Cumulative Hydrologic Impact Assessment (CHIA) is a findings document involving an assessment of the cumulative impact of all anticipated coal mining operations on the hydrologic balance within the Cumulative Impact Area (CIA). The only currently anticipated coal mining operation is the Horse Canyon Mine.

The CHIA is not a determination if coal mining operations are designed to prevent material damage beyond their respective permit boundaries when considered individually, but rather is a determination if there will be material damage resulting from effects that become cumulative outside the individual permit boundaries. This report complies with federal legislation passed under the Surface Mining Control and Reclamation Act (SMCRA) and subsequent Utah and federal regulatory programs under R645-301-729 and 30 CFR 784.14(f), respectively.

The objective of a CHIA document is to:

1. Identify the Cumulative Impact Area (CIA) (Part II)
2. Describe the hydrologic system – including geology, identify hydrologic resources and uses, and document baseline conditions of surface and ground-water quality and quantity. (Part III)
3. Identify hydrologic concerns. (Part IV)
4. Identify relevant standards against which predicted impacts can be compared (Part V)
5. Estimate probable future impacts of mining activity with respect to the parameters identified in 4 (Part VI)
6. Assess probable material damage (Part VII)
7. Make a statement of findings (Part VIII)



**Figure 3 – Horse Canyon– Lila Canyon Cumulative Impact Area (CIA)**



A CHIA was prepared in 1991 for the Horse Canyon Mine, which at that time was permitted by Intermountain Power Agency. The disturbed area in Horse Canyon has been partially reclaimed since 1986 and Phase I bond release was approved in 1997. Phase II bond release has been conditionally approved by the Utah Division of Oil, Gas and Mining (UDOGM). To complete Phase II the operator needs to remove a culvert and reestablish the channel at the refuse pile, remove all silt fences from the reclaimed sites and reclaim the #2 sedimentation pond. Some active areas still exist that are excluded from the reclamation bond. They include several large buildings, a powder magazine, a sealed portal, the #1 sedimentation pond, and a water tank.

UtahAmerican Energy Incorporated (UEI) acquired six federal coal leases from Basic Management in 1999, which subleased them from IPA in August 1998. UEI purchased the leases in June 2000. These leases are in the North Block LMU of the old Kaiser South Leases (Figure 4). The South Block has been withdrawn by the BLM.

## II. CUMULATIVE IMPACT AREA (CIA)

The Horse Canyon Mine Cumulative Impact Area (CIA) is shown on Plate 1 and Figures 3 and 4. This area is shown on the Lila Point, Cedar, Grassy, and Woodside USGS 7.5 minute quadrangles. The CIA is the area within which past, present, and anticipated or foreseeable coal mining activities may interact to affect the surface and ground water. The CIA was established based on anticipated mining activities, knowledge of surface and ground-water resources, and anticipated impacts of mining on those water resources.

The Horse Canyon Mine CIA encompasses roughly 73,000 acres (114 miles<sup>2</sup>). The permit area of the Horse Canyon Mine, including the Lila Canyon revision, is 6,032 acres, which includes 5,544 acres in six federal coal leases plus state coal leases and fee coal. The estimated size of the disturbed area for the Lila Canyon project is 48 acres: the old Horse Canyon Mine disturbed 61 acres, which are being reclaimed. There is additional federal coal south of the Horse Canyon permit area that has been leased in the past as part of an LMU, but which is not currently under lease. This area has been included in the CIA because UEI has indicated they anticipate mining that area at some as-yet undetermined future date.

Horse Canyon is one of the major surface drainages for this CIA. Little Park Wash drains the area above the Lila Canyon Mine. Horse Canyon, Lila Canyon and Little Park Wash are all intermittent drainages in the Book Cliffs escarpment. These drainages function as ephemeral streams; however, they have drainage areas of over a square mile and, as such, are classified as intermittent drainages according to the Utah Coal Rules definition (R645-100-200). Surface waters in the CIA flow off the escarpment then across the lower end of Clark Valley, an arid sagebrush desert, over 12 miles to the Price River. The Price River eventually discharges to the Green River just above the confluence with the Colorado River.

### SCOPE OF MINING

The Sunnyside coal-mining district of the Book Cliffs coal field, as defined by Osterwald (1981), includes the Horse Canyon Mine (also known as the Geneva Mine), the Sunnyside Mine, the Columbia Mine, and the Book Cliffs Mine. Only the Horse Canyon and Book Cliffs Mines are in the CIA.

#### **Horse Canyon Mine**

Coal mining in Horse Canyon is thought to have begun in the late 1800's or early 1900's. Prior to that, Horse Canyon was used as a cattle trail. In 1936, the Cedar Ridge Coal Company was formed and operated a mine in Horse Canyon.

The Horse Canyon Mine was initially opened by the Defense Plant Corporation (a United

BOOK CLIFFS AREA CHIA

States Government Agency) in 1942 as the source of metallurgical grade coal for the Geneva Steel Works in Orem, Utah. In December 1943, the Geneva Steel Company began operating the mine for the Defense Plant Corporation. On June 16, 1946, the mine was purchased from the War Assets Administration by United States Steel Corporation, and was operated by the Geneva Steel Company until January 1, 1952, when the Geneva Company became a part of the Columbia-Geneva Steel Division of United States Steel.

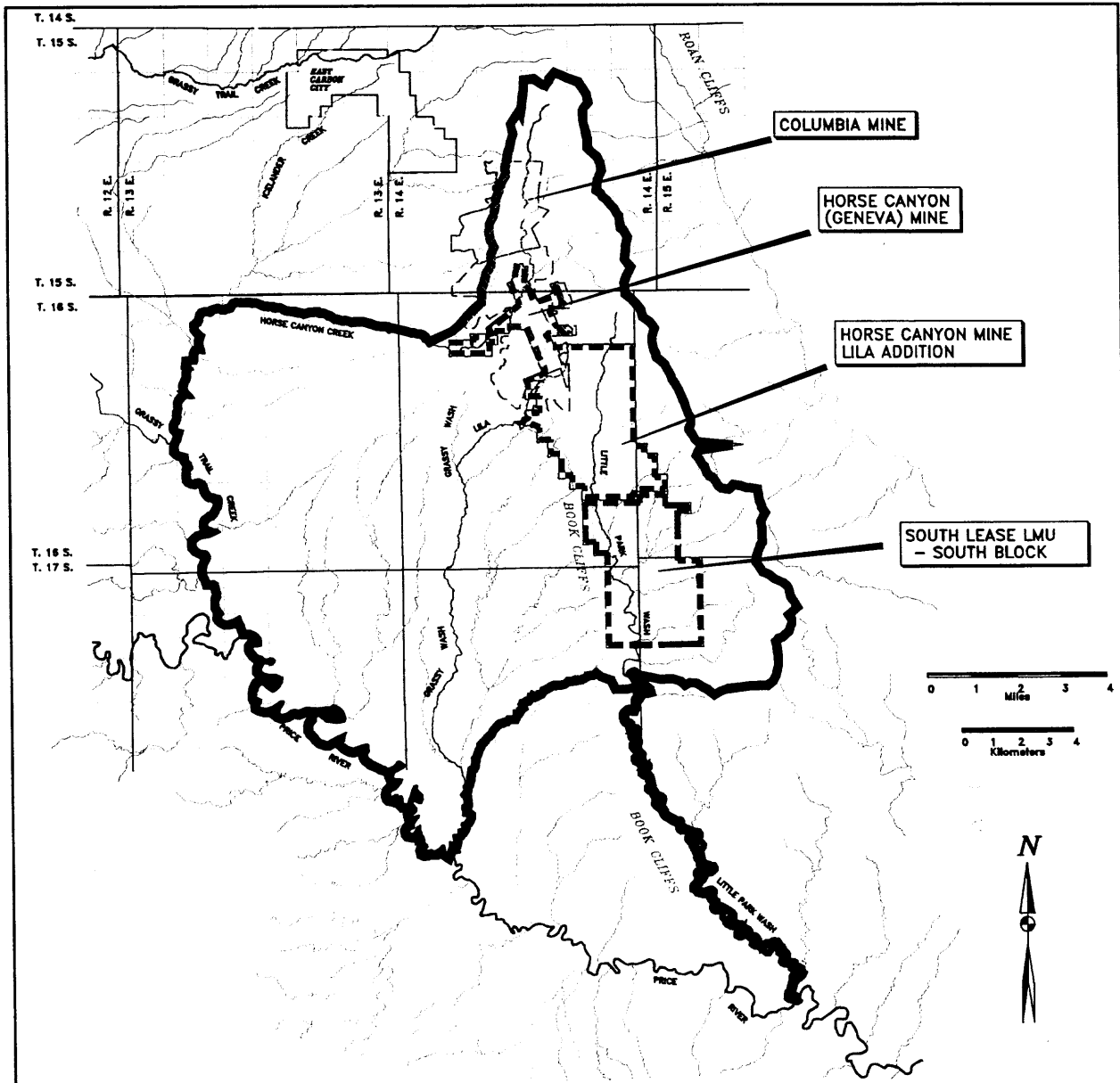


Figure 4 – Cumulative Impact Area (CIA)

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**BOOK CLIFFS AREA**

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In 1990, Intermountain Power Agency (IPA) acquired the Horse Canyon Mine and the areas south of Horse Canyon that had belonged to Kaiser Steel Corporation. UDOGM approved transfer of the permit rights. During 1990 and 1991, IPA reclaimed the majority of the surface disturbance leaving only a main facilities pad with buildings essential for future mine operations. Phase I bond release was approved in 1997 and Phase II has been conditionally approved. Altogether, 3,500 acres in and adjacent to the current Horse Canyon Mine permit area were mined. There were eleven portals in the area, and all have been sealed.

UEI subleased six federal coal lease tracts from IPA in August 1998 and purchased them in 1999. These leases are part of the old Kaiser Steel Corporation's South Lease area - North Block LMU filed in 1996. There is additional federal coal south of the Horse Canyon permit area, which has been leased in the past as part of the South Lease LMU but is not currently under lease.

Plate 1 shows the extent of mining operations. The abandoned workings are approximately 3 miles in length and extend approximately 1 mile down-dip to the east. Overburden thickness was up to 2,000 feet. Mining was done in the Lower Sunnyside coal seam.

### **Book Cliffs Mine**

The Book Cliffs Mine operated from 1938 to 1966. Coal was mined in the area between the Book Cliffs escarpment and the abandoned workings in the north part of the Horse Canyon Mine. The Prentiss, Utah Blue Diamond, Blue Diamond, and Heiner Mines were either alternative names for the Book Cliffs Mine or were smaller mines incorporated into it as it expanded.

### **Other**

Doelling (1972) presented coal characteristics information from the area near Lila Canyon. Coal samples were collected near the site of the old Book Cliffs Mine from the lower Sunnyside Coal Seam. Coal characteristics are favorable for production, however overburden becomes extensive to the east and south of the proposed site.

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**BOOK CLIFFS AREA CHIA**

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### III. HYDROLOGIC SYSTEM and BASELINE CONDITIONS

Elevations range from approximately 6,000 to over 9,000 feet in the CIA. Predominant features are cliffs, narrow canyons, valleys and pediments. Drainage in the CIA is characterized by a system of intermittent streams draining the southwest-facing Book Cliffs escarpment.

#### GEOLOGY

Plate 2 shows the surface geology of the Horse Canyon CIA. Faults, springs, and monitoring locations are also shown.

#### **Stratigraphy**

The stratigraphy of the CIA consists of strata ranging in age from Late Cretaceous to Tertiary (Eocene) as seen in Figure 5. There are no major disconformities in the area. The oldest exposed rocks include the upper members of the Mancos Shale. The Cretaceous Mesaverde Group, which in the Book Cliffs consists of the Star Point Sandstone, Blackhawk Formation, Castlegate Sandstone and Price River Formation, overlies the Mancos Shale: the Star Point Sandstone thins eastward and pinches out in the vicinity of the Dugout Canyon Mine so it is not present in the Horse Canyon area. Overlying the Mesaverde Group are the North Horn Formation, Flagstaff Limestone, Colton Formation, and Green River Formation, which in the Book Cliffs constitute the Wasatch Group of Paleocene to Eocene age. The Eocene Green River Formation is the uppermost consolidated formation in the vicinity of the CIA. Unconsolidated deposits formed by weathering and erosion exist as soils, terrace deposits, gravels along canyon streams, and pediments at the base of escarpments.

#### **Coal**

The Sunnyside Member of the Blackhawk Formation contains the primary economic coal resource in the Book Cliffs. The lowest coal seam is the Kenilworth. Doelling (1972) indicates an average thickness of 2 feet in the vicinity of Horse Canyon, with the seam probably missing in areas. The Gilson and Rock Canyon Seams that lie above the Kenilworth throughout much of the Book Cliffs coal field, and that are mined in the Dugout and Soldier Canyon Mines to the north, are not mentioned by Doelling or others for the Horse Canyon area and are either missing or very thin.

The Lower Sunnyside Seam is the only seam in the area that can be mined economically. In the abandoned sections of the Horse Canyon Mine, the Lower Sunnyside seam was uniformly 10 to 16 feet thick. Measurements indicate it is 4 to more than 18 feet thick in the Lila Canyon Project area: UEI has determined the Upper and Lower Seams are merged into one seam in the Lila Canyon area and split again into two seams to the south. Where separate from the Lower Seam, thickness of the Upper seam never exceeds 4 feet in the Lila Canyon Project area.

Doelling states his expectation for the upper coal seams to be thin and inconsequential in this area.

In most of the Lila Canyon Project, the coal seam lies below 1,500 feet of strata. Mining will take place only in a small area where strata are greater than 2,500 feet above the Lower Sunnyside seam. Average overburden thickness is about 2,000 feet in the abandoned area of the Horse Canyon permit area.

### Structure

Strata in the Book Cliffs were tilted in response to the rise of the San Rafael Swell and the Socally and Farnam anticlines, and modified by subsequent erosional, tectonic and orogenic events. Strike of the beds at the Horse Canyon Mine is roughly north-south, generally parallel to the face of the Book Cliffs. Dip is 6 to 12 degrees to the east at the Book Cliffs, but decreases eastward to as little as 4 degrees (Doelling, 1972).

Joints occur in two principal and two secondary orientations, although orientations are more accurately related to the local strike of the strata rather than to a specific direction. All joints tend to dip steeply. Retreat of the Book Cliffs escarpment has probably been facilitated significantly by blocks of rock breaking from the cliffs along joints, and soils and vegetative cover develop in large troughs formed as these blocks pull away. Northwest to north-northwest joints tend to be the most variable in orientation. They generally are parallel to strike of the strata and at right angles to the canyons and ridges of the escarpment. Locally they occur as little as 1 foot apart in zones a few feet wide, zones being a few feet to 20 feet apart. There has been vertical movement on some of these joints and some are coated with gypsum or calcite. Northeast to north-northeast joints are generally normal to the northwest to north-northwest joints and tend to be parallel to dip. The secondary joint sets trend west-northwest and northeast (Osterwald and others, 1981, p. 45).

The Sunnyside fault zone is a major north-northwest striking feature throughout much of the Sunnyside Mining District, extending from West Ridge to the Horse Canyon Mine (Osterwald and others, 1981). Average stratigraphic separation is 30 feet at Sunnyside and 40 to 60 feet at Horse Canyon, but offset on individual faults may be small. There has also been some horizontal displacement, but the amount is undetermined. Most faults within the zone are parallel to the trend of the zone. The faults dip steeply. Faults are detectable from surface mapping between West Ridge and upper Horse Canyon but not farther south. Extension of the Sunnyside Fault Zone south to the Horse Canyon Mine is uncertain, but it is believed to continue to the east of the Lila canyon addition.

Faults that strike basically east-west were mapped by Osterwald throughout the Sunnyside District, but they are more numerous in the Horse Canyon Mine area. Dips are generally vertical, but in the vicinity of Horse Canyon some of these faults dip 45° or less. For many of these faults, stratigraphic separation is greatest at the cliff-face and decreases eastward. Several additional faults with this orientation have been mapped in the area of the proposed Lila

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**BOOK CLIFFS AREA**

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Canyon addition to the Horse Canyon Mine. These faults, which have vertical offsets of 15 to more than 275 feet, divide the Lila Canyon addition into several large blocks that vary from 3,000 to 12,000 feet in width.



**Figure 5-General Stratigraphy of the Book Cliffs Coal Field (after Doelling, 1972)**

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BOOK CLIFFS AREA

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Osterwald identified two other groups of faults that are not prominent in or around the Horse Canyon CIA. A group of east-northeast and northeast trending faults is located mainly in Whitmore Canyon near the Sunnyside Mine, and a belt of west-northwest trending faults that extends from the Book Cliffs out into the San Rafael Swell is located south of the Horse Canyon CIA.

## HYDROLOGY

### **Ground water**

In the CIA, the Blackhawk Formation, Castlegate Sandstone, Price River Formation, North Horn Formation, Flagstaff Limestone, Colton Formation and Quaternary deposits all contain potential reservoirs or conduits for ground water. Reservoir lithologies are predominately sandstone and limestone. Sandstone reservoirs occur where there is sufficient intergranular porosity and permeability in lenticular fluvial-channel and tabular overbank deposits, whereas limestone reservoirs have developed through dissolution and fracturing of tabular lacustrine deposits. Shale, siltstone, and cemented sandstone beds act as aquatards or aquacludes to impede ground-water movement. The Mancos Shale is a regional aquaclude that limits downward flow. More localized aquatards occur within the North Horn, Price River, Castlegate and Blackhawk Formations. Ground water in the CIA, as is typical of ground water throughout the Price River basin, occurs under both confined and unconfined conditions.

Recharge in the Wasatch Plateau and Book Cliffs coal fields has been estimated to be 3 to 8 % (Danielson and Sylla, 1983) and 9 % (Waddell and others, 1986) of the average annual precipitation. Snowmelt provides most of the ground-water recharge. In the Book Cliffs the recharge rate is generally greatest where limestones of the Flagstaff Formation are exposed as dip-slopes at the higher elevations. The Flagstaff is thin and not exposed on dip slopes in the West Ridge CIA just to the north, and thins and interfingers with the North Horn and Colton Formations to the south, in the Horse Canyon area (p. 22 and Plate 2 in Osterwald and others, 1981).

Ground-water quality varies greatly, depending on geology, physiography, and elevation. Waddell and others (1986) indicate that TDS concentrations range from 250 to 2,000 mg/L in the Book Cliffs area. The best quality occurs in or near mountain recharge areas and the poorest quality in lowland areas. The chemical characteristics of the ground water vary vertically from formation-to-formation and areally within each formation. TDS in water from the Flagstaff Limestone ranges from 250 to 500 mg/L, whereas TDS in the Blackhawk and North Horn Formations range from 500 to 2,000 mg/L. The principal chemical constituents in Flagstaff water are calcium and bicarbonate. Water from the Blackhawk is of variable chemical composition with no single dominant cation or anion. Where dissolved solids concentrations of water in the Blackhawk are affected by Mancos Shale, sulfates of sodium and magnesium increase significantly: Mundorff (1972) and Waddell (and others, 1986) reported that water from

two springs that issue near the contact between the Blackhawk Formation and the Mancos Shale have specific conductances that indicate TDS concentrations of 1,600 and 2,000 mg/L, respectively.

Water samples collected from several locations inside the Sunnyside Mine, in particular sumps, consistently had TDS levels in excess of 1,200 mg/L. Many of the samples from areas other than sumps had better quality water with TDS levels between 400 to 800 mg/L, which is probably more representative of the ground water that was flowing into the mines. TDS levels in drill hole DH-86-1 were also in the 400 to 800 mg/L range, but 15 of 17 samples from DH-86-1 were above 1,200 mg/L TDS. Waters from springs SP-6, SP-8, and PC-1 also are high in TDS.

Saturation indexes indicate that most ground waters are at saturation with respect to calcite. Ground waters are generally under saturated with respect to dolomite, gypsum, and anhydrite (Waddell and others, 1986).

Once recharge enters the ground, the rate and direction of ground-water flow is governed mainly by gravity and geology. Lateral ground-water flow dominates in the gently-dipping Tertiary and Cretaceous strata of the Book Cliffs, where layers of low-permeability rock impede downward movement of precipitation and ground water that has seeped into the ground.

Permeabilities and hydraulic conductivities of strata have not been measured above the proposed minesite, however reports produced by the USGS and other mining companies indicate that low hydraulic conductivities can be expected in the strata to restrict ground-water movement (Table 1).

A discussion of the type of hydraulic conductivities that will be found in the Sunnyside Sandstone below the coal seam is indicated in the following paragraph, from the Soldier Canyon CHIA.

In August 1986 bore holes SC-11G, SC-12G, SC-13G were drilled from the Rock Canyon Seam workings of the Soldier Canyon Mine down through the Gilson Seam and a 13- to 20-foot thick, clean sandstone located approximately 40 to 50 feet below the Gilson Seam. Hydraulic conductivities of  $2 \times 10^{-7}$  to  $10^{-6}$  cm/sec were measured in SC-11G and SC-13G, but hydraulic conductivity was  $1.5 \times 10^{-3}$  cm/sec in SC-12G. The tests measured the hydraulic conductivity of the entire stratigraphic sequence. Ground water was under confined conditions in all three bore holes, but in SC-12G the measured head was 250 feet above the floor of the mine and water flowed into the mine until the hole was capped. The gradient determined from the three bore holes was 1,800 ft/mile (approximately  $12^\circ$ ) in a direction N  $11^\circ$  E. Even assuming the bore holes measured the hydraulic properties of the same stratigraphic sequence at three different locations, the range of hydraulic conductivities shows great inhomogeneity and the true potentiometric surface is almost certainly not planar with a uniform dip to the north-northeast. No further measurements have been reported for these wells and they are no longer usable as far as is known. Information on these three bore

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holes, including driller's logs, is in Appendix 7-I of the Soldier Canyon Mine MRP.

Table 1					
HYDRAULIC PROPERTIES of STRATA in the WASATCH and BOOK CLIFFS COAL FIELDS, UTAH					
SOURCE		FORMATION			
		Price River	Castlegate	Blackhawk	Star Point
Soldier Cyn Mine	SC-11G			$2 \times 10^{-7}$ cm/sec*	
	SC-12G			$1.5 \times 10^{-3}$ cm/sec	
	SC-13G			$10^{-6}$ cm/sec	
USGS (Wadde II, 1986)	G95.5	$7.5 \times 10^{-4}$ cm <sup>2</sup> /sec**			
	G93.5		$2.1 \times 10^{-4}$ cm <sup>2</sup> /sec		
	G100.4		$3.2 \times 10^{-5}$ cm <sup>2</sup> /sec		
USGS (Lines, 1985)	(D-17-6) 27bda-1 Horizontal			$5.3 \times 10^{-6}$ cm/sec (ss)	
				$3.3 \times 10^{-11}$ cm/sec(silt)	
				$3.9 \times 10^{-6}$ cm/sec (ss)	
				$3.9 \times 10^{-2}$ cm/sec(shale)	
				$7.0 \times 10^{-11}$ cm/sec(silt)	
					$1.1 \times 10^{-5}$ cm/sec(ss)
	(D-17-6) 27bda-1 Vertical				$5.3 \times 10^{-6}$ cm/sec(ss)
				$1.3 \times 10^{-6}$ cm/sec (ss)	
				$4.2 \times 10^{-11}$ cm/sec(silt)	
				$1.4 \times 10^{-6}$ cm/sec (ss)	
				not measured	
				$7.8 \times 10^{-10}$ cm/sec(silt)	
					$3.9 \times 10^{-6}$ cm/sec(ss)
					$2.3 \times 10^{-6}$ cm/sec(ss)

\* cm/sec = hydraulic conductivity

\*\* cm<sup>2</sup>/sec = transmissivity

Hydraulic conductivities for some strata above the coal seam are also portrayed in a report by Lines, 1985 from the Trail Mountain Mine area. The report reveals that clay seams in the matrix actively inhibit vertical movement of ground water.

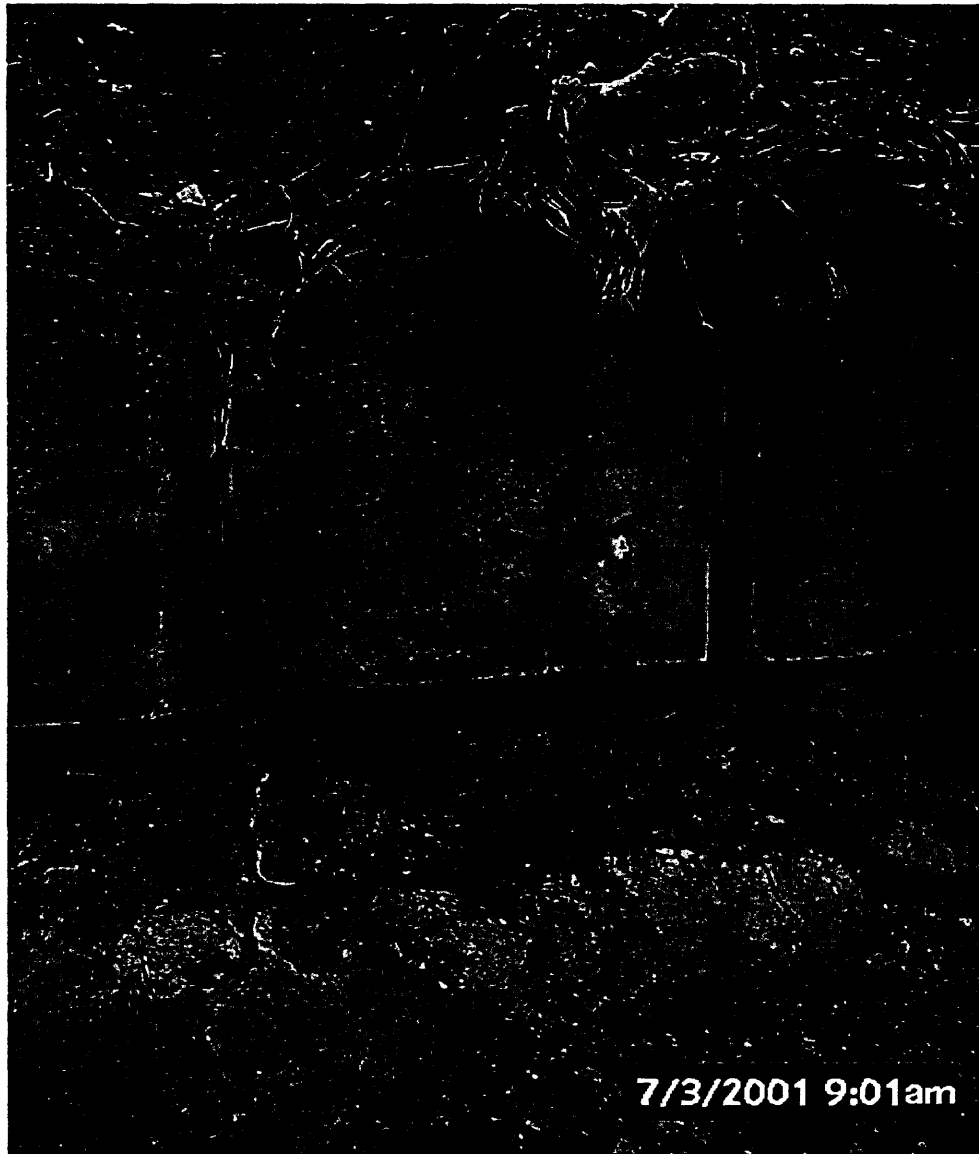
Both lateral and vertical flow may be channeled through faults and fractures, but plastic or swelling clays that can seal faults and fractures are abundant (Figure 6). Typically, ground-water flow in the Book Cliffs continues both laterally and downward until it intercepts the surface and is discharged as a spring or seep, enters a stream as baseflow, is transpired by vegetation, or simply evaporates. Ground water tends to flow more readily through shallower systems because the hydraulic conductivities are commonly larger than those of deeper systems, but some of the ground water will follow slower, deeper flow-paths.

Generally springs in the Book Cliffs and Wasatch Plateau coal fields are associated with contacts between zones or strata of differing permeability, such as at the base of sandstone lenses in the Colton and Green River Formations or fractured limestone beds in the Flagstaff and tight mudstones of the North Horn Formations (Osterwald and others, 1981). In many areas, such as the Soldier and Dugout Canyon area northwest of Horse Canyon, the contact between the Flagstaff Limestone and the North Horn Formation is the preferred location for springs; however, in the West Ridge and Horse Canyon CIAs there are only a few springs at this contact because the Flagstaff Formation is thin or absent and the contact between the Flagstaff Limestone and North Horn Formations is transitional (Osterwald and others, 1981), and in addition the overlying Colton Formation is relatively thick.

Springs were inventoried for baseline water quality and quantity information on and adjacent to the proposed Lila Canyon mining operation. Plate 1 indicates numerous springs, however, many of the springs flow only a short period with very low flow. The paucity of perennial springs in the area results from both the geologic characteristics and arid climate. There are no perennial water sources at the base of the Book Cliffs escarpment near the proposed Lila Canyon surface facilities. Redding Spring, RS-2, is the lowest and only continuous source in Horse Canyon on the escarpment side. It flows from the Lower Sunnyside Coal Seam at a rate of about of 6-10 gallons per minute (gpm) throughout the year. Spring sources on the proposed Lila Canyon Significant Revision are located on top of the escarpment.

Except for L-10-G, the springs on and adjacent to the proposed permit area appear to be associated with the lower unit of the Colton Formation, and not related to any of the fault systems on the permit area. These springs appear to be associated with separate sandstone units within the formation.

On July 2, 2001 a spring survey was conducted that included springs L-9-G and L-7-G. The main channel of Little Park Wash and its tributary channels are typically dry (Figure 7). The survey team drove 4-wheel vehicles up a tributary to Little Park Wash to access Spring L-7-G. The spring flowed about 2 gpm and had a specific conductance of 789 micromhos and a temperature of 56 degrees F.



**Figure 6** This figure shows the distinct change and variability of bedding in the Blackhawk Formation above the coal seam. Water can be found in some fractures and sandstone units, but vertical movement of ground water can be restricted.

Spring L-9-G is accessed through a narrow draw, accessible by vehicle only in the lower part. The survey team hiked up the draw and eventually ran into wet alluvium. 100 meters farther up the draw there was a small flow in the channel, and flow was 5 gpm at Spring L-9-G (Figure 8). We hiked up the channel from spring L-9-G and located a similar springsite and flow situation only with less flow. Flow along the channel was discontinuous downstream of the springs: flows were observed where bedrock was exposed in the channel and were reduced when alluvial gravels filled the channel.

Temperatures for the springs monitored July 2, 2001 ranged in the high 50's. Specific Conductance was between 700 to 780 micromhos, indicating relatively good water.

Most of the springs on the escarpment are about 1,000 feet from the summit or ridgeline that divides Little Park Wash from Range Creek Canyon. The stratigraphy in this area consists of the Upper Colton Formation, which is the recharge zone for the springs. The Colton Formation is a multi-layered formation having very low hydraulic conductivity<sup>1</sup> in some of the strata. It consists of interbedded siltstones, sandstones and mudstones deposited in a terrestrial/paludal environment. The limited recharge area and low hydraulic conductivities of the same rock units within the Colton Formation account for the very low volumes of discharge from the springs.

The Flagstaff Limestone underlies the Colton Formation. The Flagstaff Limestone is the ground-water (spring) producing formation near Soldier Canyon, northwest of the proposed Lila Canyon Mine. The fracture system that is usually associated with the limestone forms good conduits for transmitting ground water. As ground water flows through the Flagstaff Limestone it comes in contact with interbedded mudstones and shales of the North Horn Formation, which act as an aquatard, so that springs often form near the contact.



**Figure 7. Tributary to Little Park Wash. Typical dry wash in Little Park Wash drainage.**

<sup>1</sup> Hydraulic Conductivity replaces the term "coefficient of permeability" and should be used in referring to the water transmitting characteristics of material in quantitative terms, or the ability of rock to transmit water, 1989, Heath, Ralph C., U.S. Geologic Survey Water Supply Paper 2220.



**Figure 8. Watering trough at Spring L-9-G. Spring emanates in channel above fence. Water is diverted into a plastic pipe and into the trough. Spring was measured a 2 gpm.**

The surface extent of Flagstaff Limestone is not well exposed on the permit area. Spring L-10-G flows from the Flagstaff Limestone where there is more surface exposure of the formation and more recharge surface.

The springs are, vertically, about 2,000 to 2,400 feet above the coal seam to be mined (Table 2). It is very unlikely that subsidence or subsidence fractures would reach the spring or recharge sources to cause any impacts. It has been presented in other mineplans by mine operators and their consultants that shale layers in overlying formations tend to swell and seal any fractures that are created by subsidence, especially when they are exposed to ground-water sources: although this has not been confirmed through controlled studies or observations, experience at numerous mines indicates it is a valid conclusion. This swelling and sealing phenomenon would restrict movement of water through conduits created by subsidence, and provide an explanation of why most water intercepted during mining gradually slows over time.



**Table 2**  
**Elevation of Lower Sunnyside Coal Seam, Spring Resources, and Thickness of Strata**

	SURFACE ELEVATION	COAL ELEVATION	OVERLYING STRATA THICKNESS	COVER THICKNESS from PLATE 6-3
L-6-G / H-18	7500	5700	1800	
L-7-G	7400	4900	2500	2400
L-8-G	7400	5000	2400	2000+
L-9-G	7300	5000	2300	2000
L-10-G	6700	5500	1200	1250
L-11-G / H-18-A	7500	5600	1900	
L-12-G / 11	6750	5600	1150	1000+
IPA-1	7034	5379	1655	1750
IPA-2	6865	5895	970	1100
IPA-3	6810	5764	1046	1100

Plate 1 shows locations for all springs, streams and surface-water monitoring sites, bore holes, and ground-water monitoring wells. The inset provides identification of the sites used by the operator of the Horse Canyon Mine for monitoring baseline and operational data.

Three wells, IPA-1, IPA-2 and IPA-3, are used to monitor ground-water levels deep within the Blackhawk Formation at the coal seam. The wells were originally drilled in 1991 to assess the thickness and quality of the coal, so they are not much deeper than the lower Sunnyside Coal bed. The wells were cased and perforated to allow water levels in the coal seam to seek hydrostatic levels. Because water levels have been measured in the wells and ground water has been contacted in other mines in the Book Cliffs, it is expected that development of the proposed Lila Canyon Mine will also produce minewater. The operator has made plans to use, store and treat any ground water intercepted in the mine and to ensure it meets Utah Pollutant Elimination Discharge Standards before any water is discharged from the mine.

Water levels were measured in the wells 1994, 1995, and 1996. There was a hiatus in monitoring after 1996 until late 2000 when UEI put more emphasis on obtaining a mining permit for the proposed Lila Canyon Mine. These wells were again used to measure water levels in 2000 and 2001 and are included in the Lila – Horse Canyon Mine operational water-monitoring plan.

Water depth could be measured only at IPA –2 when the consultant working for UEI monitored the wells in December 2000. In IPA- 2, the measured depth was 899 feet from the surface, which closely matched the levels taken at the same well in 1994-1996.

Levels were measured in all three wells in May 2001. Depths in wells IPA-2 and IPA-3, respectively 901 and 839 feet, were similar to earlier measurements. IPA-1 has shown a steady rise (decrease in depth) over the years, from 1,134 in July 1994 to 1,128 in April 1996 to 1,114 in May 2001. IPA-2 and IPA-3 are in the same fault block, and their almost static levels are a

good indication of stability in the aquifer of this area.

The rise in water level at IPA-1 is not completely understood. A fault separates IPA-1 from the other two wells, and the throw on the fault ranges about 50 feet up on the north block at the western end of the fault to an unknown displacement on the eastern end. The bedding dips to the north east. The Horse Canyon Mine is over a mile to the north. An exploration tunnel that was developed for the mine was driven south through Section 14, a mile west of IPA-1. It is not known if water was intercepted during the development of this tunnel or if it has any connection with the rise of the water level in the well. More water monitoring of this well is recommended to track the future trend of the well.

Mining may eventually undermine these IPA monitoring wells and render them useless, but combining information from these wells with monitoring of flows in to the mine and mine discharges will provide a good picture of the effect mining is having on ground-water levels.

Most water entering mines in the Wasatch Plateau and Book Cliffs coal fields comes through leaks in the mine roof as water in storage in the interstices of the rock matrix seeps into the mine. The amount of ground water that is contacted depends on the porosity and permeability of the surrounding rock that is penetrated during mining. Sometimes mining intersects faults that produce in-mine flows.

Historically, minewater has been discharged from the nearby Soldier Canyon, Sunnyside and Horse Canyon Mines. Some discharges have been as high as several hundred gallons per minute. This information provides a basis for expecting mine water discharge from the proposed Lila Canyon Mine.

UEI has not conceded or admitted an expectation of discharging mine water, although they have made provisions for mine water discharge at the behest of UDOGM. UEI based their no discharge claim on water levels in the ground-water monitoring wells and those levels related to coal seam elevation, Figure 7-1 in the Mining and Reclamation Plan. The highest water levels measured (which is the head of water in the lower Sunnyside Coal seam) is 5,972 feet (elevation) in Well IPA-3. The elevation of projected interception of the coal seam with the rock slope tunnel is 6,300 feet, 338 feet higher than water in IPA-3. Dip is 12 % to the east-northeast. UEI expects hydraulic conductivities to be very low in this area, and plans to use any water encountered during mining in coal production and will store excess water in sumps.

Calculations by UDOGM indicate that the mine will extend down dip 3,530 feet from the tunnel intercept before the water table is contacted. Mine plans indicate that, if needed, any minewater discharges would be pumped from the mine via the coal loadout entry, then transported through a pipe to the ephemeral Lila Canyon channel, a tributary to Grassy Trail Creek. Before minewater discharges take place, UEI will obtain a discharge permit through the Utah Pollutant Discharge Elimination System (UPDES) and submit plans to UDOGM to ensure channel protection. UEI states that channel mapping and analysis will be conducted prior to any discharges to ensure protection of channel morphology.

## Surface Water

The Horse Canyon CIA is situated in the Book Cliffs, about halfway between the headwaters of the Price River and its confluence with the Green River (Figure 3). Many streams that originate in the Book Cliffs are perennial at higher altitudes but become ephemeral as they emerge from the mountains and flow onto the lowlands (p. 7 in Waddell and others, 1981). The CIA is drained by the Horse Canyon, Lila Canyon, and Little Park Wash drainages. When flows from these intermittent drainages are large enough, they eventually reach the Price River, a perennial stream. Water from Horse Canyon flows to the Price River by way of Icelandic and Grassy Trail Creeks, while that from Lila Canyon Creek flows southwest then south to the Price River by way of Grassy and Marsh Flat Washes. Little Park Wash flows south, where its waters pass through a short stretch of Trail Canyon before reaching the Price River. The Price River flows into the Green River about 40 miles southeast of the mines. The Green River flows southward from its confluence with the Price River approximately 75 miles until it discharges into the Colorado River.

Flow in the Price River is regulated at Scofield Reservoir, and discharge is measured at several locations both upstream and downstream of the confluences with Deadman, Coal, Soldier, and Grassy Trail Creeks. The area of the Price River drainage is 455 miles<sup>2</sup> above USGS gauging station 09313000 near Helper, and 1,540 miles<sup>2</sup> above USGS streamflow gauging station 09314500 near Woodside, about 10 miles below the confluence with Grassy Trail Creek. Between these two stations water is taken from the river and its tributaries for irrigation.

As of 1997, USGS water discharge data are available for station 093143000 for water years 1934 to 1969, 1979 to 1981, and 1990 to 1996. Records are fair except for estimated daily discharges, which are poor.<sup>2</sup> Extreme flows recorded were 9,340 cfs on September 13, 1940 and 0.4 cfs on August 21, 1961. The mean annual flow volume for the three periods of record is 110 cfs or 80,000 ac-ft/year.

USGS water discharge data are available for station 09314500 for water years 1909 to 1911 and 1945 to 1992. Records are fair except for estimated daily discharges, which are poor. Maximum recorded discharge was 11,200 cfs on September 7, 1991. Periods of no flow were recorded in 1960, 1961, 1963, and 1992. The mean annual flow volume (1947 to 1992) was 121 cfs or 88,000 ac-ft/year. Limited water quality data are available for 1946 to 1949, 1951 to 1988, and 1991 to 1996.

Discharge of the Green River has been measured at USGS gauging station 09315000 at Green River, Utah, about 12 miles below the confluence of the Price and Green Rivers (Figure 2). For water years 1894 to 1899 and 1904 to 1996 flow ranged from a minimum of 255 cfs on

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<sup>2</sup> "Good" means about 95 % of reported daily discharges are within 10 % of the actual discharge, "fair" means within 15 %, "poor" means reported values have less than "fair" accuracy. Accuracy is based on 1) the stability of the stage-discharge relationship or, if the control is unstable, the frequency of discharge measurements; and 2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

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November 26, 1931 to a maximum of 68,100 cfs on June 27, 1917. Average annual discharge is 6,192 cfs or 4,484,000 ac-ft/year. Records are good except for estimated daily discharges, which are poor. Water quality data are available for 1928 to 1996 (Table 3).

Snowmelt is the major source of water for the streams of the Price River basin. Intermittent and ephemeral streams are abundant, existing primarily at lower elevations where potential evapotranspiration exceeds precipitation. Intense summer thunderstorms may cause short-term flooding but not large volumes of runoff.

Water use in the higher elevations of the Price River basin is primarily for wildlife and stock watering purposes. The upper watershed provides most of the domestic water needs for the lower valley. Within the lower valley area, agricultural activities utilize some of the water (Mundorff, 1972). Minimum flows in the gauged streams and rivers in the basin occasionally reach zero. Storage reservoirs are common at higher elevations.

In general the quality of water in the headwaters of the Price River basin is excellent. Waddell and others (1981) report that the Price River and its tributaries generally have a TDS concentration of between 250 to 500 mg/L upstream from Helper, and the water type in this area is calcium bicarbonate. However, the quality of water in the Price River rapidly deteriorates down gradient. Below the town of Helper most flows originate on Mancos Shale or are irrigation return flows from lands situated on Mancos-derived soils (Price and Waddell, 1973). The Price River near the confluence with Soldier Creek has an average TDS content of about 1,700 mg/L, including sulfates of calcium, magnesium and sodium. At USGS station 09314500, the weighted average TDS content is between 2,000 and 4,000 mg/L, with the water type being strongly sodium sulfate (Mundorff, 1972).

Soil cover varies with slope, with bare sandstone cliffs along the upper portions of the canyons, shallow silty soils on the milder slopes, and shallow sand-gravel alluvium in the channel bottoms. Soils in the CIA are dominantly in hydrologic soils groups B to D (Wilson, 1975), having infiltration rates that are moderate to very slow.

The average annual sediment yield is 0.5 to 1.0 ac-ft/mile<sup>2</sup>/yr across most of the CIA, so the estimated average annual sediment yield of the Horse Canyon CIA is 57 to 114 ac-ft/yr for undisturbed conditions. (The expected sediment yield from the Lila mine disturbed area is 0.3090 ac-ft/yr.) The higher elevations of the Book Cliffs, where limestone and dolomite are exposed on steep slopes, have the lowest sediment yield, 0.1 to 0.2 ac-ft/mile<sup>2</sup>/yr. On lower, flat areas developed on the more erodible sandstones and shales of the Mancos Shale, sediment yield is 0.5 to 3.0 ac-ft/mile<sup>2</sup>/yr (Waddell and others, 1981, Plate 6).

#### SURFACE WATER HYDROLOGY OF THE CIA

The Horse – Lila Canyon CIA covers approximately 73,000 acres. It includes the south side of the Horse Canyon drainage, the Lila Canyon drainage, the Little Park Wash upper

drainage and the channel in lower Little Park Wash. Topography in the area is rugged, with elevations ranging from approximately 6,000 to over 9,000 feet. Slopes vary from vertical cliffs to less than 2 % along the ridges.

Water resources within or adjacent to the Horse – Lila Canyon CIA include a few low yielding springs and streams. There are no major water bodies located within or adjacent to the CIA. Typically, most of the total flow in the Book Cliffs is from snowmelt but highest flows are from thundershowers. Figure 9 shows monthly average flows for Grassy Trail Creek that typify the monthly variation of flow for streams draining the Book Cliffs.

### Horse Canyon

Horse Canyon originates at an altitude of approximately 9,600 feet and flows into Grassy Trail Creek. The USGS maintained gauging station 09314374 just below the Horse Canyon Mine during the 1979 to 1981 water years (USGS, 2001 and Price and Plantz, 1987). Area of the drainage above this station is 12.5 miles<sup>2</sup>.

Horse Canyon is an intermittent stream at the gauging station. Measured streamflow was quite variable during the three water years the stream was measured and reflected intermittent discharge of water from the Horse Canyon Mine. Mean annual discharge at the gauging station was 170 gpm (0.4 ft<sup>3</sup>/sec) and discharge from the mine probably accounted for half of that, based on observations in 1979 by Lines and Plantz (1981). Snowmelt runoff peaked in April or May. Greatest daily discharge was 1080 gpm (2.4 ft<sup>3</sup>/sec) in May 1980; however, a storm in November 1979 produced a flow of 940 gpm (2.1 ft<sup>3</sup>)

Flow data from the mine operators show that in 1981 and 1982, flow below the mine was high, typically 300 to 500 gpm, but dropped to no-flow from 1989 on (no data for 1983 to 1988). Flows in the two forks above the mine site have been fairly consistent during and after mining. Flows in the forks have generally been low except in response to storms: 654 gpm was recorded in the Left Fork on May 1, 1993 but there was no-flow reported in the Right Fork and below the mine on that day.

The USGS performed three sets of base-flow measurements in Horse Canyon. In August and November 1978 the streambed was dry below the confluence of the North and South Forks, about two miles above the Horse Canyon Mine and on the Price River Formation. Flows measured farther downstream on all three days were mainly from mine discharge.

Water samples were collected and analyzed from August through September 1979 (Lines and Plantz, 1981) and during water years 1979 to 1981 (Price and Plantz, 1987). Most of the water sampled was discharged from the mine just upstream of the monitoring station. TDS averaged approximately 1,900 mg/L, with a low of 953 mg/L and a high of 4,220 mg/L. Sodium and sulfate were the main dissolved ions. Suspended sediment was measured in twenty-seven samples: concentrations ranged from 2 to 2,278 mg/L. Suspended-sediment discharge ranged from less than 0.01 to 2.0 tons/day and was greatest during spring snowmelt.

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Benthic invertebrates were sampled during the summers of 1978 and 1979. The small diversity of organisms reflected the poor water quality and intermittent flow (Lines and Plantz, 1981).

### **Lila Canyon**

Lila Canyon lies between Horse Canyon and Little Park Wash. It drains an area of approximately 2 miles<sup>2</sup> in the Book Cliffs. Flow is intermittent, and when flow from this canyon is sufficient it reaches the Price River by way of Grassy and Marsh Flat Washes.

Hydrologic information on Lila Canyon is sparse. As with other drainages in the area, runoff is limited to spring snowmelt and individual storm events. Because of the small size of Lila Canyon, flows from snowmelt are limited to early spring. In observations done at least quarterly since 1999 by UEI, no flow has been recorded in the Lila Canyon drainage, and no indications of perennial flow have been found anywhere in Lila Canyon.

### **Little Park Wash**

Little Park Wash drains southward, behind and parallel to the Book Cliffs escarpment, and joins Trail Canyon for a short distance before the confluence with the Price River. As with most drainages in the Book Cliffs, runoff is limited to spring snowmelt and individual storm events.

Flow and water quality information on Little Park Wash is sparse: observations done at least quarterly since 1999 have found no flow. This is functionally an ephemeral stream. Some small springs exist in tributaries to Little Park Wash, but flows from these springs typically evaporate or are absorbed into the alluvium before reaching the main channel.

### **Grassy Trail Creek**

Information is presented on Grassy Trail Creek that illustrates the characteristics, water quality and quantity along the Book Cliffs, even though the upper portion of Grassy Trail Creek is not part of the CIA. The headwaters of Grassy Trail Creek are in the area between the Book Cliffs and the Roan Cliffs (Plate 1), at altitudes ranging from approximately 7,000 to over 9,000. Whitmore Canyon, a steep, deep, narrow valley, has been eroded through Tertiary and Cretaceous strata. At the mouth of Whitmore Canyon, Grassy Trail Creek crosses a large alluvial fan, then meanders across a gently sloping plain on the Mancos Shale to its confluence with the Price River. Grassy Trail Creek is perennial in Whitmore Canyon to just below Grassy Trail Reservoir, but intermittent from the Sunnyside area to its confluence with the Price River. According to Mundorff (1972), Grassy Trail Creek has the largest drainage area of any tributary to the Price River.

The USGS measured discharge of Grassy Trail Creek for water years 1979 to 1985 at

station 09314340 (USGS, 1998), located approximately half way between the town of Sunnyside and the Sunnyside Mine. Record quality was good. Grassy Trail Creek average daily mean discharge for the seven-year period was 9.9 cfs (Figure 9). Maximum daily mean flow was 349 cfs on May 28, 1983 and maximum measured flow was 631 cfs on May 31, 1983. Minimum daily mean flow was 0.04 cfs on February 22, 1981, and no flow was observed at some time during the day on several days in February 1981.

Water quality was measured in up to 49 samples from station 09314340 during water years 1979 to 1984 (Price and Plantz, 1987). TDS ranged from 330 to 1,900 mg/L, with a mean value of 988 mg/L. In general, dominant cations were calcium and magnesium and dominant anions were bicarbonate and sulfate; however, there were seasonal variations that related directly to TDS, which was related to streamflow and mine discharges. In 12 samples analyzed for lead, maximum concentration was 55 µg/L, which is above the Utah Division of Water Quality (UDWQ, 1994) criteria of 50 µg/L for aquatic wildlife and domestic water sources. Eight samples were analyzed for mercury, with mercury concentrations ranging from below the detection limit of 0.1 µg/L up to 1.4 µg/L, which all fall below the UDWQ criteria of 2 µg/L for Class 1C and 2.4 µg/L for Classes 3A-3D waters; however, some exceeded the criteria for the protection of human health of 0.144 µg/L.

Phenols come from natural organic sources but can also be indicators of polluting effluents from industrial processes, including coal mining. The limit for Class 1C waters for the protection of human health is 300 µg/L, but for aquatic wildlife (Classes 3A-3D) the limit is only 10 µg/L (UDWQ, 1994). For many species of fish, 5 µg/L has been reported to be harmful (Waddell and others, 1981). Lines and Plantz (1981) reported levels of 0 to 2 µg/L in six samples. The twenty phenol analyses reported by Price and Plantz (1987) were all below a detection limit of 40 µg/L, so phenol levels may have exceeded water quality standards for aquatic wildlife without being detected.

Suspended sediments in 25 samples ranged from 4 to 1,640 mg/L. The largest calculated instantaneous sediment load was 518 tons/day. The sampled sediments were about 17 % coal, with water discharged from the mines being the probable source (Price and Plantz, 1987).

Price and Plantz (1987) reported good benthic-invertebrate diversity. In the five phytoplankton samples collected in 1981, green algae had a uniform distribution but blue-green algae had relatively larger numbers in three.

Monitoring of Grassy Trail Creek by Sunnyside Mines showed that from 1989 through 1992, when sampling ceased, TDS consistently exceeded 1,200 mg/L between the Sunnyside Mine and the town of Sunnyside. During this same period TDS concentrations also increased at monitoring sites upstream of the main mine area. This does not appear to have been solely due to road salting because concentrations of all ions increased more-or-less uniformly.

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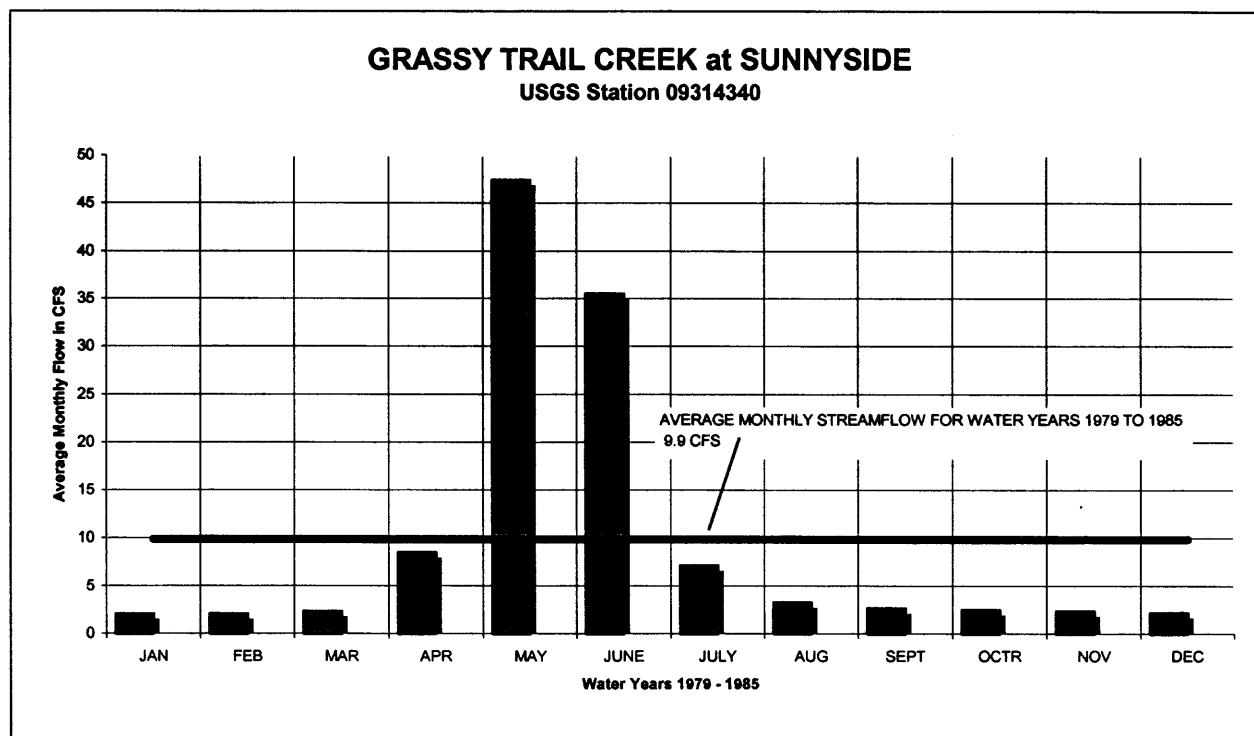


Figure 9 - Average Monthly Flow for Grassy Creek at Sunnyside



TABLE 3. SUMMARY OF SELECT WATER QUALITY DATA FROM USGS STATIONS  
PRICE RIVER AT WOODSIDE AND GREEN RIVER AT GREEN RIVER UTAH

STATION NUMBER	STATION NAME	WATER YEAR	DISSOLVED SEDIMENT	SPECIFIC CONDUCT- ANCE (micro-	pH	TEMPER- ATURE (deg. C)	DIS- SOLVED SOLIDS RESIDUE at 180	CAL- CIUM	MAG- NESIUM	SOD- IUM	POTA- SIUM	CHLO- RIDE	SUL- FATE	BI- CARBONATE	IRON		MANGANESE		SUSPENDED
				mohs)	(units)	(deg. C)	deg. C	Ca	Mg	Na	K	Cl	SO <sub>4</sub>	HCO <sub>3</sub>	TOTAL	DISSOLVED	TOTAL	Mn	
09314500	Price River at Woodside	1975-76	Min.	2,200	8.2	0	1,070	170	85	230	7.0	31	1,000	260	-	-	-	-	-
			Max.	4,950	8.0	26.5	4,830	310	250	730	12.0	78	2,000	330	-	-	-	-	-
		1976-77	Min.	1,370	7.4	0	1,150	220	16	77	7.0	15	600	170	440	10	-	8	-
			Max.	6,950	8.7	29.0	6,770	400	350	1,100	15.0	130	4,300	570	510,000	70	16,000	110	69,400
		1977-78	Min.	1,140	7.6	0	1,290	110	79	190	4.0	22	640	40	10	10	90	10	27
			Max.	6,090	8.7	26.0	4,990	330	290	760	13.0	100	3,100	450	18,000	20	860	60	4,420
		1978-79	Min.	1,110	8.0	-	822	83	51	110	3.4	17	390	240	280	-	10	-	16
			Max.	6,540	8.4	21.5	6,240	250	320	990	17.0	110	3,700	500	46,000	-	1,300	20	5,560
		1979-80	Min.	1,090	8.0	0	761	-	-	-	-	-	-	270	-	0	-	-	93
			Max.	5,510	8.7	23.0	5,660	-	-	-	-	-	-	\$20	63,000	-	2,600	10	12,200
		1980-81	Min.	2,720	8.0	0	2,070	130	130	300	7.2	52	1,300	160	-	-	-	-	0
			Max.	4,480	8.3	24.0	3,860	250	230	640	12.0	96	2,500	330	-	-	180	-	5,200
		1981-82	Min.	1,170	8.0	0	830	82	53	97	2.9	16	360	194	9,600	-	240	-	150
			Max.	4,080	8.3	23.5	2,880	240	210	530	8.9	90	2,100	350	24,000	-	820	-	23,000
		1982-83	Min.	830	8.2	0	830	82	53	97	2.3	17	210	210	-	-	-	-	110
			Max.	3,920	8.4	20.0	3,500	260	220	520	8.9	79	2,200	340	36,000	-	960	-	12,000
09315000	Green River at Green River	1975-76	Min.	450	8.1	0	276	41	19	30	1.0	7.7	110	150	570	0	30	0	32
			Max.	1,030	8.7	26.0	704	82	35	110	3.3	35	300	270	32,000	60	1,000	20	3,403
		1976-77	Min.	530	7.7	0	335	49	15	44	2.1	15	150	160	1,300	0	30	0	-
			Max.	1,520	8.7	29.0	1,210	190	43	110	7.0	33	670	300	330,000	190	7,600	20	18,300
		1977-78	Min.	300	7.9	0	212	33	13	33	1.0	7.1	69	190	1,700	10	50	0	95
			Max.	1,070	8.5	28.5	756	81	39	120	3.5	38	350	270	21,000	40	630	10	13,400
		1978-79	Min.	300	8.0	0	273	35	15	29	-	8	86	-	830	0	40	0	49
			Max.	1,240	8.5	28.0	852	87	42	110	9.5	41	390	330	19,000	120	500	8	47,500
		1979-80	Min.	320	7.6	0	214	29	12	21	1.5	7.4	70	130	2,000	<10	50	1	60
			Max.	1,310	8.5	27.0	798	85	37	110	5.0	38	410	260	39,000	40	1,100	10	11,600
		1980-81	Min.	320	7.8	0	273	47	19	50	1.8	14	160	110	1,200	<10	40	1	19
			Max.	1,200	8.3	26.0	852	82	41	110	3.7	40	350	190	27,000	30	880	10	5,760
		1981-82	Min.	290	8.0	0	196	29	10	19	0.6	6	60	90	10,000	5	210	<1	134
			Max.	1,060	8.4	27.5	749	82	40	100	3.3	37	320	180	31,000	20	840	6	16,700
		1982-83	Min.	400	8.0	0	494	30	15	29	-	9.3	98	111	-	6	-	3	64
			Max.	960	8.4	25.0	584	69	32	76	-	25	270	104	-	31	-	130	5,650

Notes: Station locations: See Figure 4 (Price River Drainage Basin.

Constituents : in mg/L, except manganese and iron, which are in micrograms/L.

Specific Conductance: field determinations.

pH: field determinations.

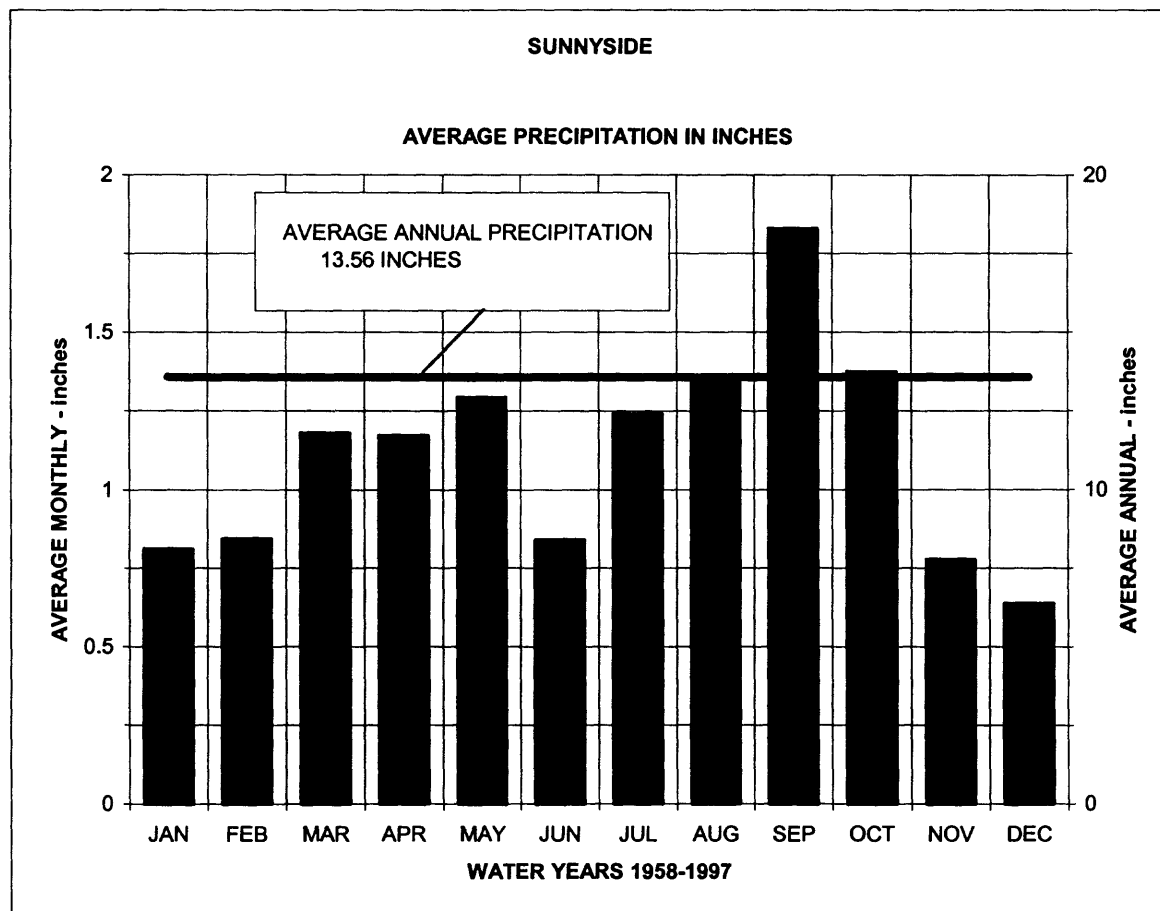
BOOK CLIFFS AREA

CLIMATOLOGIC INFORMATION

The permit area is located in the northwestern portion of the Price River basin in eastern Utah. The basin is surrounded almost completely by mountains, with elevations of over 9,000 ft. in the CIA. The mountains greatly influence local weather, inhibiting cold arctic air masses from penetrating into the region and acting as a barrier to storms approaching from every direction except south.

Figure 10 - Precipitation at Sunnyside

Daily climatic information is collected at a National Weather Service station in Sunnyside, Utah. Mean monthly precipitation at Sunnyside is shown in Figure 10. Average



annual precipitation is 13.56 inches. The area typically receives the greatest quantity of moisture from thundershowers in the late summer and early fall (August-October). The driest months at Sunnyside are November to February.

Average annual precipitation in the CIA ranges from approximately 8 inches or less on

the valley floor to 16 to 20 inches in upper Lila Canyon (Mundorff, 1972, Plate 2). In the Price River basin as a whole, approximately 65 % of total precipitation falls as snow during the period from October to April and approximately 70 % falls at elevations above 6,000 feet (Mundorff, 1972). At the mouth of Whitmore Canyon (elevation 6,750 feet) near the Sunnyside Mine snow accumulations range from 0 to 21 inches during October through March, but at 7,280 feet snow accumulations ranged from 0 to 50 inches. Monthly maximum, mean monthly maximum, and mean daily snow accumulations for the years 1973 through 1983 at the Sunnyside Mine are in Table 4. Average annual snowfall from 1958 to 1988 at the Sunnyside Mine, approximately elevation 6,800 feet, was 38 inches (Ashcroft and others, 1992). Ground accumulations of snow are characteristically of short duration due to melting and sublimation.

Measured evapotranspiration in the Sunnyside area is 41 to 43 inches (Ashcroft and others, 1992). Sunnyside Coal Company estimated potential evaporation to be over 60 inches (Chapter 4, West Ridge PAP).

Temperature ranges of the permit area are typical for a semi-arid region, with colder temperatures at higher elevations. At the Sunnyside Mine (1958 to 1988) average maximum temperature was 58 degrees, average mean was 46, and the average minimum was 33 degrees. Average monthly temperatures ranged from an average minimum of about 14° F in January to an average maximum of about 85° F in July. Last freeze is typically in late May and first freeze in late September to early October (Ashcroft and others, 1992).

SNOW ACCUMULATION IN INCHES, 1973-1983  
SUNNYSIDE MINE  
(approximately 6,800 feet elevation)

	<u>Maximum</u>	<u>Mean</u> <u>Maximum</u>	<u>Mean</u> <u>Daily</u>
October	6.5	1.35	0.73
November	6.0	1.69	0.28
December	14.00	4.42	1.73
January	21.00	9.86	4.01
February	21.00	6.44	2.84
March	15.00	5.30	0.60

Table 4

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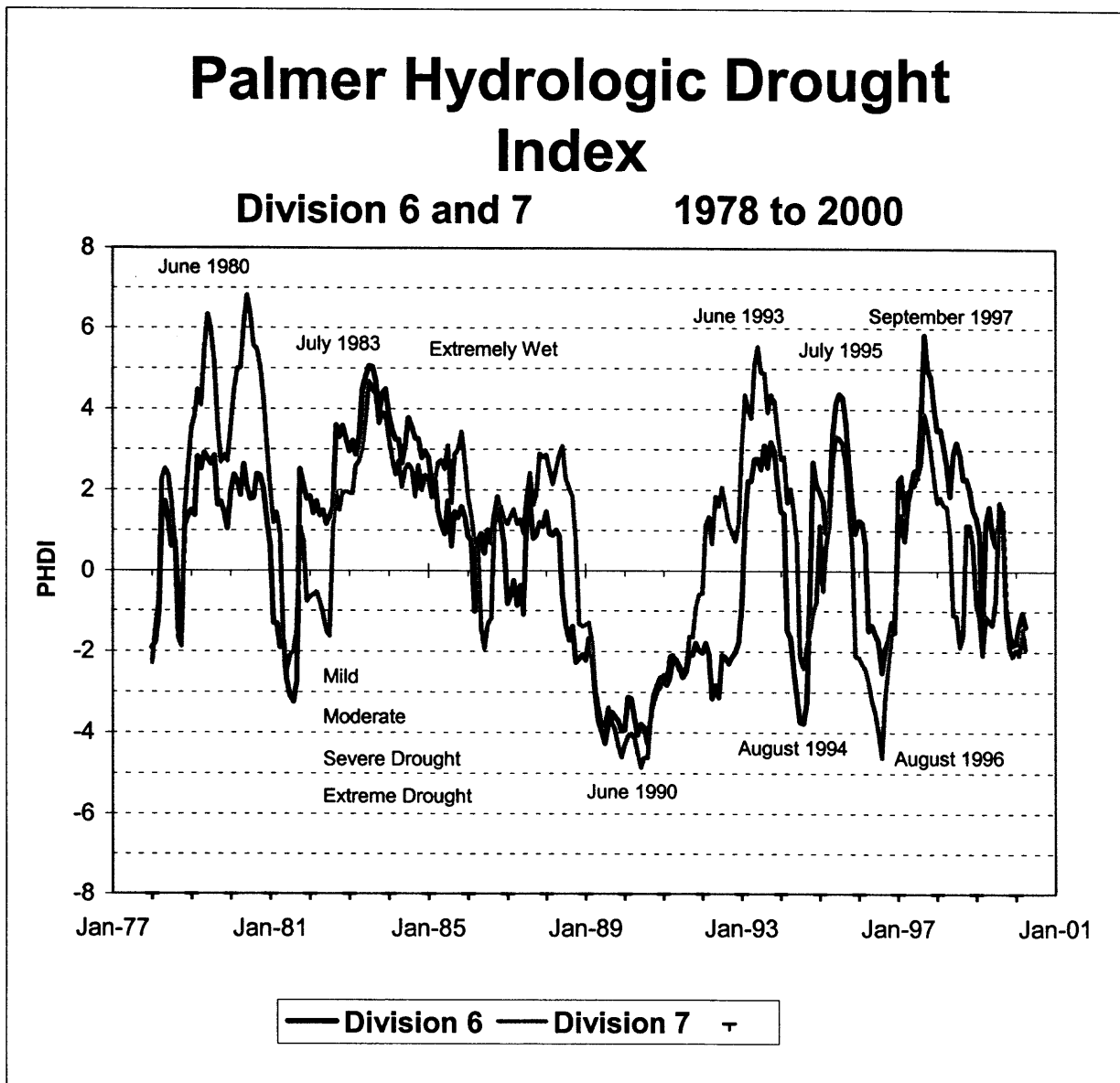
The Palmer Hydrologic Drought Index (PHDI) indicates long-term climatic trends for the region (Figure 11). The PHDI is a monthly value generated by the National Climatic Data Center (NCDC) that indicates the severity of a wet or dry spell. The PHDI is computed from climatic and hydrologic parameters such as temperature, precipitation, evapotranspiration, soil water recharge, soil water loss, and runoff. Because the PHDI takes into account parameters that affect the balance between moisture supply and moisture demand, it is a useful for evaluating the long-term relationship between climate and ground-water recharge and discharge. Figure 11 shows the Palmer Hydrologic Drought Index for Utah Divisions 6 and 7; the permit area lies in Division 7 but near Division 6. These graphs indicate wet years between the late 1970's and late 1980's, followed by several years of drought in the late 1980's and early 1990's. Since about 1993, wet and dry cycles have been shorter.

### Wind

Wind data were collected during 1982 and 1983 (1993 Sunnyside Coal Company MRP Appendix 7-2). The data, collected near East Carbon from atop a 45-meter tower, show that the majority of the winds are from the north-northeast through the south-southwest (clockwise) with an average annual speed of 6.2 mph.

Upper level winds, over 1,600 feet above the ground level, are generally from the southwest during most of the year. The wind tends to be strong high in the atmosphere but weakens toward the surface where obstructions and surface friction come into play. During the winter, air flow from the northeast is common. Local night airflow patterns, which are induced by descent of colder air, primarily follow canyon bottoms from the mountains down to the valleys, and wind speed resulting from this descent of colder air is generally light. Daytime flow is strongly influenced by surface heating effects that result in mixing between the surface and upper flows. There is a general air flow toward the north and northeast (to higher elevations) during the day, and toward the southwest (toward lower elevations) during the night. Winds are usually light to moderate (below 20 mph) unless influenced by localized thunderstorms or moving frontal systems. Higher wind speeds are generally associated with storm systems and higher elevations such as ridge tops and plateaus (Chapters 4 and 7 of the West Ridge MRP).

Figure 11 – PHDI for Horse Canyon Region



**BOOK CLIFFS AREA**

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#### IV. IDENTIFY HYDROLOGIC CONCERNS

The CHIA is based on the best currently available data and is a prediction of mining related impacts to the hydrologic balance outside of the specific permitted coal mine areas. To verify that conditions remain within acceptable limits the mine operator is required to monitor water quality and quantity as part of the permit requirements. The plans for monitoring are set forth in the Mining and Reclamation Plan (MRP) for the Horse Canyon Mine and have been determined adequate by UDOGM to meet regulatory requirements. If monitoring results show significant departures from the values established in the MRPs and in this CHIA or exceed UPDES discharge requirements, immediate remedial actions are provided for by SMCRA.

Water quality standards for surface waters in the State of Utah are found in R317-2, Utah Administrative Code (UAC). The standards are intended to protect the waters against controllable pollution. Waters, and the applicable standards, are grouped into classes based on beneficial use designations. The Utah Division of Water Quality of the Department of Environmental Quality has classified surface waters in the Horse – Lila Canyon CIA as:

- 2B - protected for recreational uses except swimming,
- 3C - protected for nongame fish and aquatic life, and
- 4 - protected for agricultural uses.

General hydrologic concerns include changes of flow rates and chemical composition that could physically affect the off-permit hydrologic balance. Changes to the existing hydrologic regime or balance need to be limited in order to prevent economic loss to existing agricultural and livestock enterprises, prevent significant alteration to the channel size or gradient, and maintain adequate capacity for existing fish and wildlife communities. The basis for the limiting value of a parameter may differ according to specific site conditions.

Sediment is a common constituent of ephemeral stream flow in the western United States. The quantity of sediment in the flows affects stream-channel stability and most uses of the water. Excessive sediment deposition is detrimental to existing aquatic and wildlife communities. Large concentrations of sediment in streamflow may preclude use of the water for irrigating crops because fine sediment tends to reduce infiltration rates in the irrigated fields, and the sediment reduces capacities of storage facilities and damages pumping equipment. Mean sediment load is the indicator parameter for evaluating the sediment hazard to stream-channel stability and irrigation.

The concentration of dissolved solids is commonly used to indicate general water quality with respect to inorganic constituents. The quality of water from underground sources reflects the chemical composition of the rocks the water passes through. That quality may be degraded by intrusion of poorer quality water from wells or mines, by leakage from adjoining formations, or by recharge through disturbed materials. Ground water discharging from seeps and springs is used by wildlife and livestock. The state standard for TDS for irrigation of crops and



stockwatering (Class 4) is 1,200 mg/L.

Macroinvertebrates are excellent indicators of stream quality and can be used to evaluate suitability of a stream to support fish and other aquatic life. Because the stream channels on and adjacent to the Lila Canyon Mine function as ephemeral streams, there are no aquatic invertebrates.

The Utah Department of Environmental Quality, Division of Water Quality can authorize a coal mine to discharge into surface waters under the Utah Pollutant Discharge Elimination System (UPDES). The Horse Canyon Mine has a UPDES permit to discharge to Grassy Trail Creek from two points, UPDES point # 1 is located at the principal spillway of the sedimentation pond, and UPDES point #2 is located near the mine portals at a culvert riser that leads directly into the main bypass culvert. UPDES sample point #2 is to sample water that may be discharged directly from the mine.

The Horse Canyon Mine UPDES permit contains limitations on TDS (one-ton/day), total suspended solids (30-day average, 25 mg/L; 7-day average, 35 mg/L; daily maximum, 70 mg/L), total settleable solids (0.5 mL/L for storm-water discharges), total iron (1.0 mg/L), oil and grease (10 mg/L), and pH (between 6.5 and 9.0). There is no limit on flow but it is to be measured monthly, and the duration of intermittent discharge is to be reported along with flow. Additionally, there can be no more than a trace amount of visible sheen, floating solids, or foam and no discharge of sanitary waste or coal process water. Monitoring is by monthly grab samples. (Sunnyside Coal Company had an approved UPDES permit with a TDS concentration limit of 1,650 mg/l for the mine water discharge).

The Lila Canyon addition to the Horse Canyon Mine will require additional UPDES discharge permits. Until they are actually issued, it can only be supposed that they will be similar to those already issued for the Horse Canyon Mine.

Utah water quality standards exist for numerous parameters other than those already mentioned above, but at this time there is no evidence or reason indicating they are of concern or have a reasonable potential to affect the hydrologic balance of the CIA. However, those parameters that may have a reasonable possibility of affecting the hydrologic systems are included in routine water quality monitoring of the mine operations. Review of monitoring results by the mine operators and UDOGM will identify concerns or problems and generate revisions of the mine operations to mitigate those problems.

## V. IDENTIFY RELEVANT STANDARDS

### RELEVANT STANDARDS

The UPDES permit for the Horse Canyon Mine provides some standards for water quality in the area around Horse and Lila Canyons. The Lila Canyon addition will require permitting of additional UPDES discharge points, and it can only be inferred that the water-quality standards will be the same as for the existing discharge points.

**Flow:** There is no standard for flow in the Utah water quality standards. The Horse Canyon Mine UPDES permit contains no limit on flow. Discharge is to be measured monthly, and the duration of intermittent discharge is to be reported along with flow. Characteristics such as stream morphology, vertebrate and invertebrate populations, and water chemistry can be affected by changes in flow and therefore can provide an indirect standard for flow.

**Oil and Grease:** There is no State water quality standard for oil and grease, but the Horse Canyon Mine UPDES permit limit is a daily maximum of 10 mg/L, which is typical of UPDES permits for coal mines in the Wasatch Plateau and Book Cliffs. Only one grab-sample a month is required to measure oil and grease, but any observation of visual sheen requires a sample be taken immediately. A 10 mg/L oil and grease limit does not protect fish and benthic organisms from soluble oils such as those used in longwall hydraulic systems, and UDWR has recommended soluble oils be limited to 1 mg/L (Darrell H. Nish, Acting Director UDWR, letter dated April 17, 1989 to Dianne R. Nielsen, Director UDOGM).

**Total Dissolved Solids (TDS) concentrations:** The Horse Canyon Mine UPDES permit allows up to one-ton per day, to be determined by one grab sample per month. TDS is commonly used to indicate general water quality with respect to inorganic constituents. There is no state water quality standard for TDS for Classes 1, 2, and 3, but 1,200 mg/l is the limit for agricultural use (Class 4). Sunnyside Coal Company had an approved UPDES permit with a TDS concentration limit of 1,650 mg/l for the mine water discharge.

**pH:** Allowable pH ranges are 6.5 to 9.0 under State water quality standards for all Classes, and also under the Horse Canyon Mine UPDES permit.

**Total Suspended Solids (TSS) and Settleable Solids:** the Horse Canyon Mine UPDES permit has the following allowable limits on TSS: 30-day average, 25 mg/L; 7-day average, 35 mg/L; daily maximum, 70 mg/L. TSS is to be determined by a

monthly grab sample.

There is no State water quality standard for solids in the water, but an increase in turbidity is limited to 10 NTU for Class 2A, 2B, 3A, and 3B waters and to 15 NTU for Class 3C and 3D waters.

Under the current Horse Canyon Mine UPDES permit, all samples collected during storm water discharge events are to be analyzed for settleable solids. Samples collected from increased discharge, overflow, or bypass that is the result of precipitation that does not exceed the 10-year, 24-hour precipitation event may comply with a settleable solids standard of 0.5 mL/L daily maximum rather than the TSS standard, although TSS and the other UPDES parameters are still to be determined. If the increased discharge, overflow, or bypass is the result of precipitation that exceeds the 10-year, 24-hour precipitation event, then neither the TSS nor settleable solids standard applies.

**Iron and Manganese:** The Horse Canyon Mine UPDES permit allows a daily maximum of 1.0 mg/L total iron, determined by a monthly grab sample. State water quality standards allow a maximum of 1,000 µg/L dissolved iron in Class 3A, 3B, 3C, and 3D waters, with no standard for Class 1, 2, and 4 waters.

Monitoring of total manganese is required by SMCRA and the Utah Coal Mining rules, but there is no UPDES or Utah water quality standard for either total or dissolved manganese.

**Macroinvertebrates:** Macroinvertebrates are excellent indicators of stream quality and can be used to evaluate suitability of a stream to support fish and other aquatic life. Baseline studies of invertebrates (Lines and Plantz, 1981; USGS, 1980, 1981, 1982 and 1983; Waddell and others, 1982; and Price and Plantz, 1987) provide standards against which actual conditions in Grassy Trail Creek, Horse Canyon, and several nearby creeks can be evaluated if desired.

Utah water quality standards exist for numerous parameters other than those mentioned above, but at this time there is no evidence to indicate nor reason to believe that those parameters are of concern in the Horse – Lila Canyon CIA. However, additional parameters recommended for routine monitoring in UDOGM directive Tech-004 are included in the water-monitoring plan of the Horse Canyon Mine operations.

### MATERIAL DAMAGE

Material damage to the hydrologic balance would possibly manifest itself as an economic loss to the current and potential water users, would result in quantifiable reduction of the

capability of an area to support fish and wildlife communities, or would cause other quantifiable adverse change to the hydrologic balance outside the permit area. The basis for determining material damage may be found to differ from site-to-site within the CIA according to specific site conditions. Surface-water and ground-water concerns have been identified for CHIA evaluation.

The Division of Oil, Gas and Mining received a letter from Mr. Josiah Eardley, a landowner, during the comment period asking the regulatory authority to ensure protection of water rights he owns near the proposed mine permits area. Mr. Eardley's water rights, as well as all water rights on the proposed permit area were evaluated during the review process to ensure the utmost protection.

#### **Parameters for surface-water quantity and quality**

The potential material-damage concerns this CHIA focuses on are changes of surface flow rates and chemical composition that would physically affect the off-permit stream channel systems as they presently function and affect aquatic and wildlife communities. There is no farming in the CIA, however there is livestock production. Therefore, criteria are intended to identify changes in the present discharge regime that might be indicators of economic loss to the livestock enterprise, of significant alteration to the channel size or gradient, or of loss of capacity to support existing fish and wildlife communities within the CIA. In order to assess the potential for material-damage to these elements of the hydrologic system, the following indicator parameters were selected for evaluation at each evaluation site: low-flow discharge rate, TDS, and sediment load.

The surface-waters will be evaluated at L-1-G, L-2-G, L-3-G, RF-1, HC-1 and B-1 in the drainages below the escarpments. Generally, these sites have been dry and receive flow only during rapid snowmelt and heavy rainstorms.

#### **Low-Flow Discharge Rate**

Measurements provided by mine operators are generally of instantaneous flow and provide some indication of long-term trends, but are probably no more accurate either individually or as a whole than the "poor" USGS measurements. In the Wasatch Plateau, Waddell and others (1981) found that correlating three years of low-flow records (September) at stream sites against corresponding records from long-term monitoring sites would allow the development of a relationship that could be used to estimate future low-flow volumes at the stream sites within a standard deviation of approximately 20 %. Ten years of measurements reduced the standard deviation to 16 - 17 % and 15 years of data reduced it to about 15 %. This relationship has not been demonstrated for streams in the Book Cliffs; however, it indicates that a change in low-flow rates of less than 15 to 20 % probably would not be detectable. A 20 % decrease in the low-flow rate will provide a threshold indicator that decreased flows are persisting and that an evaluation for material damage is needed. However, because flows in

Horse and Lila Canyons are intermittent, material damage due to loss of flow is very unlikely, and the intermittent nature of the flow will also make any such loss almost impossible to detect.

Monitoring of mine-discharge rates will provide a means to evaluate effects of the mine discharge on the receiving streams. The potential for material damage by mine discharge water is tied to the effect of that discharge on the flow in the receiving streams, and that effect will be most pronounced during low-flow, which at Lila and Horse Canyons is no-flow. Water from the Lila Canyon Mine disturbed area will be monitored at the discharge from the sedimentation pond (L-4-S). Direct discharge from the mine will be monitored near the mine portal (L-5-G). The operator of the Horse Canyon Mine has applied for UPDES permits to discharge from these two locations.

#### **Total Dissolved Solids (TDS)**

The concentration of dissolved solids is commonly used to indicate general water quality with respect to inorganic constituents. Wildlife and livestock use is the designated post-mining land use for the Horse Canyon and Lila Canyon Mines, so established dissolved solids tolerance levels for wildlife and livestock have been adopted as the thresholds beyond which material damage may occur. The state standard for TDS for irrigation of crops and stockwatering (Class 4) is 1,200 mg/L. If TDS concentrations persistently exceed 1,200 mg/L it will be an indication that evaluation for potential material damage is needed.

#### **Sediment Load**

Sediment is a common constituent of ephemeral stream flow in the western United States. The quantity of sediment in the flows affects stream-channel stability and most uses of the water. Excessive sediment deposition is detrimental to existing aquatic and wildlife communities. Large concentrations of sediment in streamflow may preclude use of the water for irrigating crops because fine sediment tends to reduce infiltration rates in the irrigated fields, and the sediment reduces capacities of storage facilities and damages pumping equipment. Sediment load measurement error is, at a minimum, the same as the flow measurement error because sediment load is directly dependent on flow and in practice cannot be measured more accurately than the flow.

TSS is the indicator parameter initially chosen for evaluating the sediment hazard to stream-channel stability and irrigation. Threshold values have initially been set as the greater of 1 standard error above the baseline mean TSS value or 120 % of the baseline mean TSS value (by analogy with the low-flow discharge rate measurement accuracy and assuming that the error in TSS will contribute equally to the error in flow when determining mean sediment load). If TSS concentrations persistently exceed these threshold values it will be an indication that evaluation for material damage from sediment load in the streams might be needed.

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**Parameters for ground-water quantity and quality**

The potential material-damage concerns this of CHIA are intended to limit changes in the quantity and chemical composition of water from ground-water sources to magnitudes that: will not cause economic loss to existing or potential agricultural and livestock enterprises; will not degrade domestic supplies; would not cause structural damage to the aquifers; and will maintain adequate capacity for existing fish and wildlife communities.

To assess the potential for material damage to these elements of the ground-water hydrologic system, the following indicator parameters were selected for evaluation: seasonal flow from springs and TDS concentration in spring and mine-discharge water.

Ground-water concerns will be monitored at five springs, three wells, and the mine-water UPDES discharge point at the Lila Canyon area, and will continue at springs and wells in the Horse Canyon area. Locations are identified on Plate 1. If UDOGM finds that inflow to the mine is significant or persistent, UDOGM can require monitoring of mine inflow.

**Seasonal flow from springs**

Maintain potentiometric heads that sustain average spring discharge rates, on a seasonal basis, equal or greater than 80 % of the mean seasonal baseline discharge, or in other words baseline minus 20 % probable measurement error. The 20 % measurement error is based on analogy with the accuracy of measuring low-flow surface discharge rates. A 20 % decrease in flows, determined on a seasonal basis, will indicate that decreased flows are probably persisting and that an evaluation for material damage is needed.

**TDS concentration**

The concentration of total dissolved solids is commonly used to indicate general water quality with respect to inorganic constituents. The quality of water from underground sources reflects the chemical composition of the rocks the water passes through. Ground-water quality may be degraded by intrusion of poorer quality water from wells or mines, by leakage from adjoining formations, or by recharge through disturbed materials. Ground water discharging from seeps and springs is used by wildlife and livestock, and those are the designated postmining land uses. There is no water quality standard for TDS for aquatic wildlife. The state standard for TDS for irrigation of crops and stockwatering (Class 4) is 1,200 mg/L. If TDS concentrations persistently exceed 1,200 mg/L it will be an indication that evaluation for material damage is needed.

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## VI. ESTIMATE PROBABLE FUTURE IMPACTS OF MINING ACTIVITY

### GROUND WATER

Dewatering and subsidence related to mining have the greatest potential for impacting ground-water resources in the CIA.

#### **Dewatering**

Underground mining removes the support to overlying rock, causing caving and fracturing of overlying strata. In areas where fracturing is extensive, subsidence induced caving and fracturing can create conduits that allow ground water to flow into the mine. Dewatering caused by fracturing may decrease aquifer storage. Ground water in storage is not a major recharge source to springs. Only Redden spring receives recharge from the deep ground-water storage in the CIA. Fracturing of overlying strata will only intercept some of the deep ground-water storage. These areas will eventually drain and dry up because most of the beds have low hydrologic conductivities. In the CIA, it is unlikely that fractures will reach shallower perched aquifers that supply springs because of the thickness of the overlying strata is well over 1,500 feet. Water discharged downstream from the Book Cliffs is often of better quality than natural spring flow or base flow.

Total ground-water storage can be estimated above the Lower Sunnyside coal seam by assuming an average saturated thickness of 1,000 feet, an area of 5,544 acres, and a storage coefficient of 0.10, the same as used for Soldier Canyon Mine. At the Horse Canyon Mine, the maximum cover exceeds 1,500 feet and the average overburden is approximately 1,500 feet, so 1,000 feet may be a reasonable estimate of saturated thickness. Therefore an estimate of total ground-water storage above possible Horse Canyon Mine workings is 554,400 ac-ft.

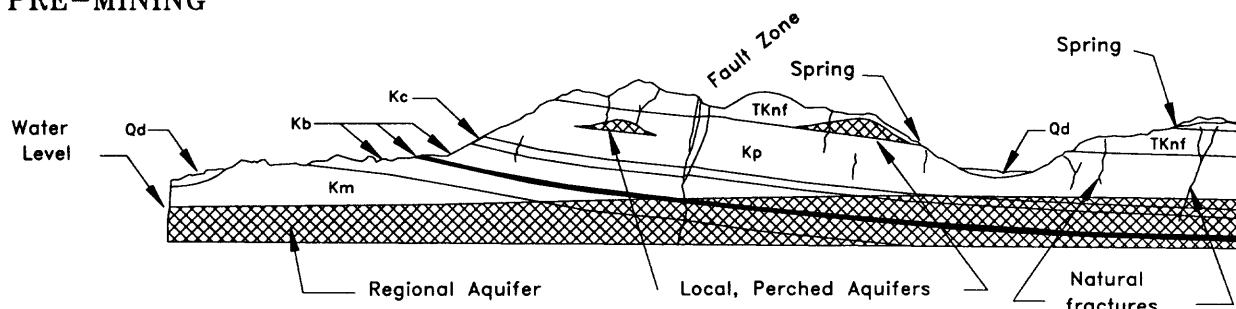
Annual average ground-water recharge for the 7.2 miles<sup>2</sup> of the the Lila Canyon Mine is estimated to be 622 ac-ft using 9 % as the average infiltration factor and 18 inches as the average precipitation for the recharge area. Because of hydrologic isolation between the Blackhawk Formation and the surface, UEI does not foresee an increase in recharge rates or a decrease in discharge rates at the surface because of dewatering of deeper strata. Another reason that a notable or measurable increase in recharge is also unlikely is because recharge is generally available only for a few months during spring snowmelt and for very brief periods during summer thundershowers. During these seasonal, relatively short events the soils reach saturation quickly and reject most available water.

The Blackhawk Formation is probably saturated in most areas (Waddell and others,



1986, p. 41) and the Lila Canyon Mine might be expected to produce water at rates similar to those observed in the Soldier and Horse Canyon Mines. Most water entering mines comes from ground water stored in the overlying strata after fracturing of the rock above the mine. Due to the great amount of strata between the Lila Canyon Mine and springs on the surface, the springs or their recharge sources will not be affected. The mobility and expanding characteristics of clays, shales and mudtones in the overlying strata should also help seal conduits created by fracturing (Figure 12).

### PRE-MINING



### POST-MINING

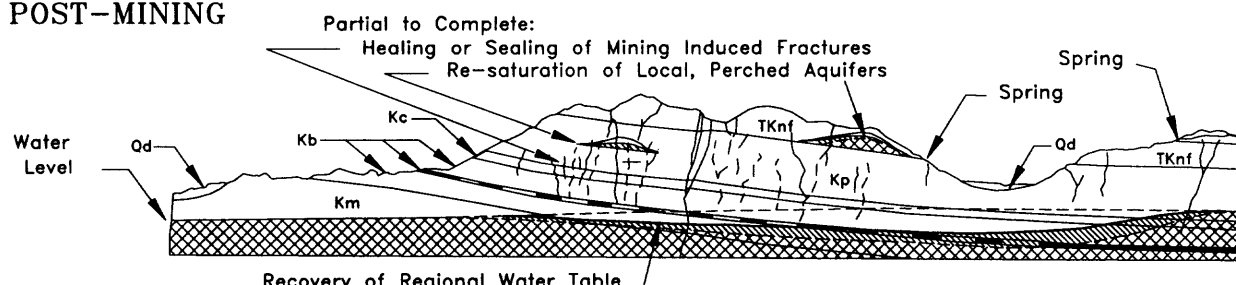


Figure 12. A cross-section of the Book Cliffs showing the relationship between mining, geologic strata and ground water before and after mining.

### Subsidence

Subsidence impacts are largely related to extension and expansion of existing fracture systems and upward propagation of new fractures. Inasmuch as vertical and lateral migration of water appears to be partially controlled by fracture conduits, readjustment or realignment in the conduit system will inevitably produce changes in the configuration of ground-water flow.

Potential changes include decreased flow through existing fractures that close, increased

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flow rates along existing fractures that open further, and the diverting of ground-water flow along new fractures or within newly accessible permeable lithologies. Subsurface flow diversion may cause the depletion of water in local aquifers and loss of flow to springs that are undermined.

Annual reports for 1988, 1989, 1992, 1993, 1994, 1995, and 1996 for the Soldier Canyon Mine indicate no surface subsidence over the current permit area (indicated elevation changes are within the limit of accuracy of the survey method). Mining has occurred beneath 500 to 2,000 feet of overlying strata and mining is projected to be done beneath up to 2,250 feet of cover. The Castlegate Sandstone and thick overburden are responsible for reduced surface subsidence at Soldier Canyon.

It is anticipated that the thickness of the same formations in the Lila Canyon area will also prevent subsidence. Mining is also taking place in only one coal seam, the Lower Sunnyside seam, which ranges from 4 to 16 feet thick. Strata above the mine ranges from 500 feet to 2,500 feet.

#### SURFACE WATER

Changes in flow volume and in water quality have the greatest potential for impacting water resources in the CIA. Sites that have been or are currently being used to monitor surface- and ground-water are shown on Plate 1.

#### **Water Quality**

Uncontrolled runoff from the disturbed lands and waste piles could increase sediment concentrations and alter the distribution and concentration of dissolved solids in the receiving streams. Sedimentation controls are already in place for receiving streams in the Horse Canyon Mine area. The potential for inducing water quality changes in the Lila Canyon channel and south fork of Coleman Wash and other streams has been fully recognized by the regulatory authorities, and a runoff control plan has been established for the Lila Canyon Mines that is adequate in anticipating, mitigating and monitoring the potential impacts.

Four stations at Lila Canyon will monitor ephemeral drainages contributing to lower Grassy Trail Creek: L-1-S in upper Lila Canyon; L-2-S above the disturbed area in the south fork of Coleman wash, Lila Canyon; and L-3-S below the mine site in Lila Canyon. L-4-S will monitor discharge from the sedimentation pond, if any should occur. Three surface-water monitoring stations are in place to monitor Horse Canyon Creek.

If it becomes necessary to discharge water from the proposed mine, the water will discharge into the Lila Canyon wash. In addition to being monitored at LCM-1 and LCM-3, discharged water will be subject to monthly monitoring stipulated by a UPDES permit. Because

the monitoring required under the UPDES permit is more stringent and more frequent than that proposed in this permit application, discharge samples will be collected from the UPDES discharge monitoring point rather than at the drainage monitoring stations.

The UPDES permits for Lila Canyon will probably be similar to those for Horse Canyon. The current Horse Canyon permit has limits on: TDS (one-ton/day), total suspended solids (30-day average, 25 mg/L; 7-day average, 35 mg/L; daily maximum, 70 mg/L), total settleable solids (0.5 mL/L for storm-water discharges), total iron (1.0 mg/L), oil and grease (10 mg/L), and pH (between 6.5 and 9.0). There is no limit on flow, but it is to be measured and reported monthly. The duration of intermittent discharge is to be reported along with flow. Additionally, there can be no more than a trace amount of visible sheen, floating solids, or foam and no discharge of sanitary waste or coal process water. Monitoring is to be by monthly grab samples.

### **CIA Sediment Control**

Sedimentation controls are already in place at the Horse Canyon Mine. A portion of the disturbed area has been reclaimed. Phase I bond release was approved in 1997 and Phase II bond release has been conditionally approved for that area. One condition is the removal of sedimentation pond #2.

The Horse Canyon Mine sedimentation pond #1 is still functioning and collects the runoff from the Bond exempt area. The pond is sized to contain the runoff for a 10 year, 24 hour precipitation event plus sediment volume of three years.

Sediment will be controlled from the Lila Canyon mine. Undisturbed runoff will be routed around the disturbed area. The MRP describes construction methods to be used to control runoff and sediment. A sedimentation pond is to be used throughout mining and Phase II reclamation periods. Runoff control will need to be implemented using alternative methods (ie. silt fences, berms, straw bales) during installation of the 60 inch undisturbed culvert and upon its removal and restoration of the natural channel through the site.

The expected sediment from the Lila mine disturbed area is 0.3090ac-ft/yr. The sedimentation pond at Lila Canyon is designed for the complete retention of the 10 year, 24 hour storm event plus three years of sediment storage. This will effectively reduce the sediment yield from the disturbed area to an insignificant amount during the operational and reclamation phase of the mine. Drainage from undisturbed areas will, for the most part, be carried under the mine site through a bypass culvert.

The principal spillway will be a 24 inch corrugated metal pipe fitted with an oil skimmer. This spillway will discharge flows over the 10 yr-24 hr precipitation event. The emergency spillway will convey any flow in excess of the 25 year, 6 hour precipitation event out of the pond. Both spillways will flow directly into the bypass culvert to the South Fork of Coleman Wash. A riprap headwall and apron will prevent erosion of the channel around the undisturbed

**BOOK CLIFFS AREA**

---

culvert.

When the bypass culvert is removed for reclamation, the channel will be regraded and silt fences will be installed adjacent to the reclaimed channel, approximately along contour and with overlapping ends, to collect and contain sediment from the site. The surface of the regraded area will be gouged with a backhoe bucket to create large depressions that act as sediment traps. All the disturbed areas will be reseeded using seedmixes approved by UDOGM. The sediment yield from the reclaimed area is anticipated to be minimal. Water monitoring will determine if runoff levels are lower than the undisturbed channels.

Alternate sediment control areas (ASCA) will be used in areas where the surface disturbance is minor and sediment control is expected to be restored fairly rapidly with revegetation. At the topsoil stockpiles, ditches will divert undisturbed area runoff away from the stockpiles, silt fencing will be placed around the stockpiles to minimize siltation from the stockpile, the surface of the stockpiles will be pocked and roughened to retain moisture and minimize runoff, and the surface of the piles will be revegetated to minimize surface erosion. The office and parking lot area below the mine yard facility area will slope to one end, where silt fencing will be used for sediment control, and the slopes and embankment of the office pad will be revegetated to control sedimentation and erosion.

### **Water Quantity**

If it becomes necessary to discharge water from the Lila workings of the Horse Canyon Mine, the water will discharge into the Lila Canyon drainage. In addition to being monitored at L-5-G, discharged water will be subject to monthly monitoring stipulated by a UPDES permit.

Upon termination of mining operations, if there has been any discharge of ground water from the Lila or Horse Canyon Mines, discharge will be discontinued and the mine will begin to flood. There will be a reduction in surface flow because of the loss of the mine discharge. Because the drainages are intermittent, there is little or no baseflow to these streams, and surface flow will probably be unaffected by a return to pre-mining conditions as the mine floods. The time required for mine flooding will depend not only on the rate of water inflow but also on the amount of caving and the void space remaining after caving. Complete flooding of the mine may never occur because flow out of the mine through the roof, floor, and ribs and into the surrounding rock will increase as flooding increases the hydraulic head within the abandoned workings.

It is anticipated that discharge of water from the Lila Canyon mine operations will be similar what has been observed or predicted at the Dugout and West Ridge Mines and the old Horse Canyon workings. Upon termination of mining operations, the Lila workings will probably flood to the same extent as the Horse Canyon workings. There will be no gravity discharge from the mine

It is anticipated that no acid or toxic mineral contamination will take place during or anytime after mining. Surrounding soils and bedrock contain buffering compounds of calcium carbonates and bicarbonates. Mine water discharge should not take place, because the formations slope back away from the mine portals. All rockwaste and coalwaste having a potential of acid or toxic forming materials will be buried at least four feet deep. All disturbed area runoff will be contained, monitored, and treated if required before discharge to ensure water quality standards are met.

#### ALLUVIAL VALLEY FLOORS

The Lila Canyon and Horse Canyon Mine pads would be the only surface disturbances within the permit area during the life of the mine. Factors are present within the permit area that would preclude these sites, as well as the permit and adjacent areas, from classification as alluvial valley floors.

## VII. ASSESS PROBABLE MATERIAL DAMAGE.

The probable hydrologic impacts are summarized below under the headings entitled First Five Year Permit Term and Future Mining.

### FIRST FIVE YEAR PERMIT TERM (Horse Canyon - Lila Canyon Mine)

The Horse Canyon - Lila Canyon Mine is expected to be dry initially, with water inflow increasing as mining progresses. The rate of dewatering will probably be less than the estimated recharge rate during the first five year permit term. Overburden thickness will be substantial (500 to 2,400 feet) to restrict surface manifestations of subsidence. Subsurface propagation of fractures may produce changes in ground-water flow that could require the mine operator to discharge minewater after it is treated and tested. There will be no impacts to intermittent streams or springs over the area designated for mining. Future monitoring will provide data applicable to documenting changes in the ground-water system.

Surface disturbance and the discharge to Lila Canyon are not expected to degrade water quality. Sediment control measures that are proposed for use at the Lila Canyon Mine have been checked for functionality and should prevent diminution to water quality.

There is no AVF to be impacted.

### FUTURE MINING

Increased rates of dewatering may in the future result in depletion of ground-water storage in some beds above the coal seam. Upon cessation of mining, mine water discharge, if there has been any, will be discontinued. Mine flooding will probably result in reestablishment of the preexisting ground-water systems.

Drainage from future surface disturbance will be managed through appropriate sediment controls. Future Horse Canyon - Lila Canyon Mine discharges will be directed through sediment control measures. Hydrologic structures will prevent erosion.

At the termination of mining, downstream potential AVFs will experience decreased flow as mine discharge stops. The duration and extent of this impact cannot be accurately assessed at this time. However, flow rates may be partially to fully restored when the ground-water system is reestablished by flooding of the abandoned mines.

The operational designs for the Horse Canyon/Lila Canyon Mines are evaluated based on the information submitted in the mine plans and referenced literature and in accordance with

the regulations of the Utah Coal Rules. UEI's planned prevention, control, and containment plans will prevent damage to the hydrologic balance outside the mine plan areas and protect wildlife and agricultural uses.

## **VII. STATEMENT OF FINDINGS.**

The Utah Division of Oil, Gas and Mining finds that there will be no impacts to hydrologic resources that will degrade water quality below set standards or interrupt flow to spring and streams in the CIA.

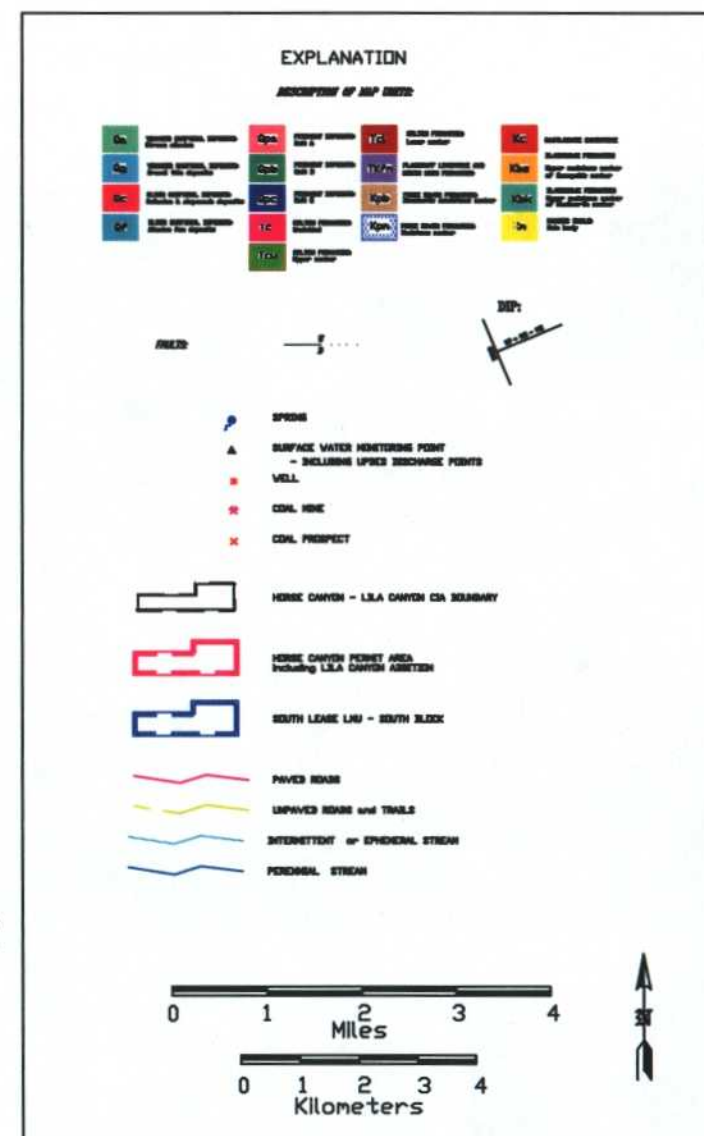
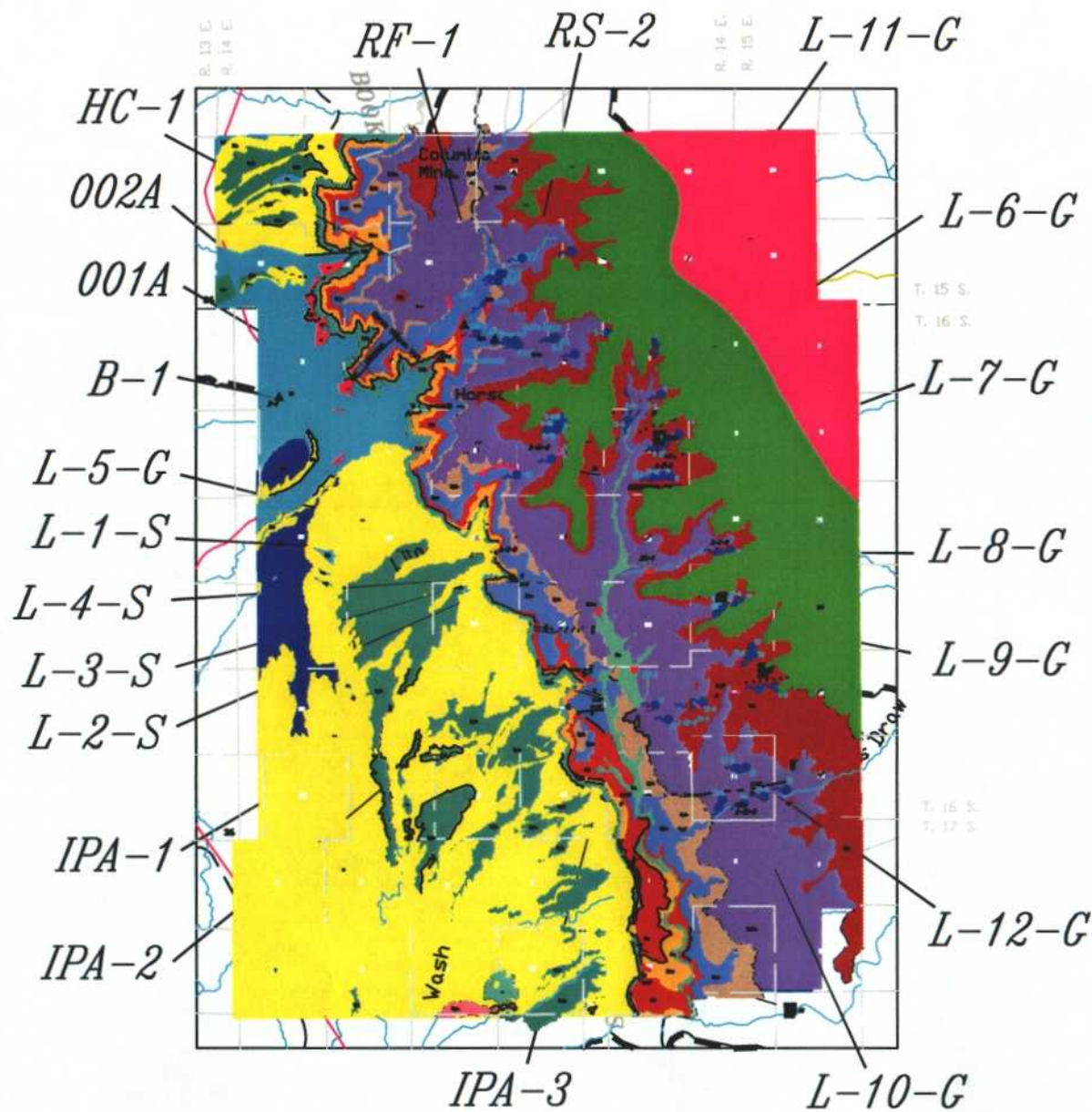


## VIII. REFERENCES

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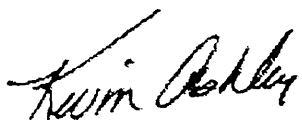
**AFFIDAVIT OF PUBLICATION**

STATE OF UTAH)


ss.

County of Carbon.)

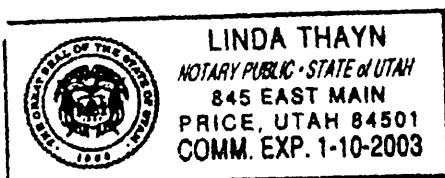
I, Kevin Ashby, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (four) consecutive issues, and that the first publication was on the 4th day of March, 1999 and that the last publication of such notice was in the issue of such newspaper dated the 25th day of March, 1999.

  
Kevin Ashby - Publisher

Subscribed and sworn to before me this 25th day of March 1999.

  
Notary Public My commission expires January 10, 2003 Residing at Price, Utah

Publication fee, \$ 441.60



**PUBLIC NOTICE  
SIGNIFICANT REVISION  
UtahAmerican Energy, Inc.  
HORSE CANYON MINE**

Notice is hereby given that UtahAmerican Energy Inc., P.O. Box 986, Price, Utah 84501, has submitted a complete application to the State of Utah, Division of Oil, Gas & Mining for a significant revision to the Horse Canyon Mine Permit Number ACT/007/013. The new application will be known as part "B" Lila Canyon Mine and is a significant revision to the existing Horse Canyon Mine Permit.

A copy of the complete application is available for inspection at the Division of Oil, Gas & Mining office located at 1594 West North Temple, Suite 1210, Salt Lake City, Utah 84114-5801, and at the Emery County Recorder's Office, Emery County Courthouse, Castle Dale, Utah 84513 and at the Carbon County Recorder's Office, Carbon County Courthouse, Price, Utah 84501.

The addition to the permit are is described as follows:

**T16S R14E**

Section 10	Portions of SE1/4	Section 22	NE1/4NE1/4
Section 11	E1/2 Portions of W1/2	Section 23	N1/2 SE1/4 E1/2SW1/4
Section 12	All	Section 24	All
Section 13	All	Section 25	N1/2
Section 14	All	Section 26	N1/2NE1/4 SE1/4NE1/4
Section 15	Portions of E1/2 SW1/4		

**T16S R15E**

Section 19	W1/2SW1/4 SE1/4SW1/4 S1/4NE1/4SW1/4
Section 30	NW1/4 SW1/4 NE1/4 S1/4NW1/4NE1/4

The described areas are contained on the following U.S. Geological Survey 7.5 minute quadrangle maps, Cedar, Lila Point.

Written comments, objection or requests for informal conferences on the application may be submitted by anyone affected by this proposal. Such comments should be filed within the next thirty (30) days with: State of Utah, Department of Natural Resources, Division of Oil, Gas & Mining.

Published in the Sun Advocate March 4, 11, 18 and 25, 1999.

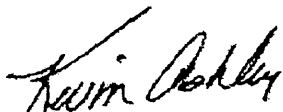
# AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

SS.

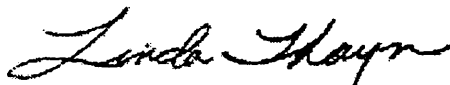
County of Emery,)

I, Kevin Ashby, on oath, say that I am the Publisher of the Emery County Progress, a weekly newspaper of general circulation, published at Castle Dale, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (four) consecutive issues, and that the first publication was on the 9th day of March, 1999 and that the last publication of such notice was in the issue of such newspaper dated the 30th day of March, 1999.



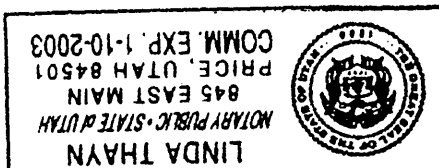
Kevin Ashby - Publisher

Subscribed and sworn to before me this 30th day of March, 1999.



Notary Public My commission expires January 10, 2003 Residing at Price, Utah

Publication fee, \$ 316.80



## **PUBLIC NOTICE SIGNIFICANT REVISION UtahAmerican Energy, Inc. HORSE CANYON MINE**

Notice is hereby given that UtahAmerican Energy Inc., P.O. Box 986, Price, Utah 84501, has submitted a complete application to the State of Utah, Division of Oil, Gas & Mining for a significant revision to the Horse Canyon Mine Permit Number ACT/007/013. The new application will be known as part "B" Lila Canyon Mine and is a significant revision to the existing Horse Canyon Mine Permit.

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Section 12	All	Section 24	All
Section 13	All	Section 25	N1/2
Section 14	All	Section 26	N1/2NE1/4 SE1/4NE1/4

Section 15 Portions of E1/2  
SW1/4

### **T16S R15E**

Section 19	W1/2SW1/4 SE1/4SW1/4 S1/4NE1/4SW1/4
Section 30	NW1/4 SW1/4 NE1/4 S1/4NW1/4NE1/4

The described areas are contained on the following U.S. Geological Survey 7.5 minute quadrangle maps, Cedar, Lila Point.

Written comments, objection or requests for informal conferences on the application may be submitted by anyone affected by this proposal. Such comments should be filed within the next thirty (30) days with: State of Utah, Department of Natural Resources, Division of Oil, Gas & Mining.

Published in the Emery County Progress March 9, 16, 23 and 30, 1999.



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

July 26, 2001

TO: Compliance File

FROM: Pamela Grubaugh-Littig, Permit Supervisor *pgl*

RE: 510 (c) Recommendation for UtahAmerican Energy Inc., Horse Canyon Mine, C/007/013,

As of this writing of this memo, there are no NOVs or COs which are not corrected or in the process of being corrected for the Horse Canyon Mine. There are no finalized civil penalties, which are outstanding and overdue in the name of Utah American Energy, Inc. UtahAmerican Energy, Inc. does not have a demonstrated pattern of willful violations, nor have they been subject to any bond forfeitures for any operation in the state of Utah.

Attached is an OSM recommendation from the Applicant Violator System with a notice that there were no violations retrieved by the system.

sm

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Application Evaluation Report Applicant Violator System 26-Jul-2001 08:10:11

State : UT Permit No : ACT007013      Appl No : ACT007013  
Permittee : 146487( UTAHAMERICAN ENERGY INC )      Seqno : 2  
Applicant : 146487( UTAHAMERICAN ENERGY INC )

OSMRE: Comments/Analysis: Date : 26-Jul-2001 Mode : VIEW

There were no violations retrieved by the system. The

SRA: Comments/Analysis: Date : 26-Jul-2001 Mode : UPDATE

SAVE(F5)      DELETE(F8)  
PRV\_SCR(F3)      QUIT(F4)      CHOICES(F10)



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

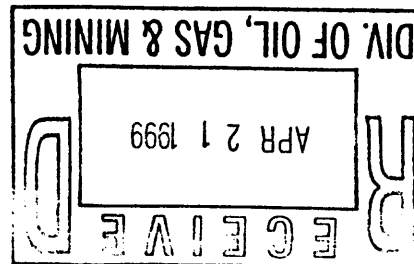
UTAH FIELD OFFICE  
LINCOLN PLAZA  
145 EAST 1300 SOUTH, SUITE 404  
SALT LAKE CITY, UTAH 84115



In Reply Refer To

(CO/KS/NE/UT)

April 14, 1999



Ms. Mary Ann Wright, Associate Director of Mining  
Utah Division of Oil, Gas, and Mining  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

RE: Determination of Administrative Completeness, Lila Canyon, Utah American Energy, Inc., Horse Canyon Mine, Carbon and Emery Counties

Dear Ms. Wright:

The U.S. Fish and Wildlife Service (Service) has reviewed the Determination of Administrative Completeness for the Lila Canyon Mine. The proposed coal mine causes direct disturbance to 39.86 acres within a 40.77 acre affected permit area, including: 4.6 miles of new road and railroad, 1.6 miles of power lines, and 8.2 miles of water discharge line to the Price River. The Service previously provided comments to your office in a letter dated January 6, 1998. We offer the following comments for your consideration at this time:

Threatened and Endangered Species:

Listings of threatened and endangered species statewide and within the project area should be updated. For example, Table 3-1 only lists ten threatened and endangered species as occurring within the state of Utah, but the actual list is more extensive. It may be more appropriate to remove this table since the more important issue is the potential for species within the project's zone of influence.

Similarly, section 322.210 states that the black-footed ferret, bald eagle, and peregrine falcon are potential inhabitants of the project area. We provided a species list to your office in our letter dated January 6, 1998 which also included the Barneby reed-mustard, bonytail chub, Colorado pikeminnow (previously the Colorado squawfish), humpback chub, Jones cycladenia, last chance townsendia, maguire daisy, razorback sucker, San Rafael cactus, Winkler cactus, and Wright fishhook cactus as potential project inhabitants. Please clarify whether all species were evaluated for actual presence within the project area's zone of influence. For example, it is unclear whether the potential impact to Colorado pikeminnow of mine effluent from the proposed discharge line to the Price River has been evaluated. Colorado pikeminnow are known to occur in the Price River up to mile marker 88. Formal consultation per section 7 of the Endangered Species Act is

ACT/007/013 #2  
Copy Aaron: Paul



required if the determination is that the project "may affect" the listed species.

Following recent updates of our statewide threatened and endangered species list as well as interagency coordination, we now include the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) as potential species within Emery county (see enclosed map). Willow flycatcher breeding habitat is typified by areas of dense willow or willow mixed with a variety of riparian shrubs and small trees. An assessment of potential habitat for the southwestern willow flycatcher should be included in the mine plan. For areas considered potential southwestern willow flycatcher habitat, the Service recommends presence/absence surveys. Formal consultation per section 7 of the Endangered Species Act is required if the determination is that the project "may affect" the listed species.

#### Raptors:

The Service appreciates the efforts of Utah American Energy, Inc. to construct power lines in a manner which minimizes potential hazards to raptors. The Service recommends application of power line designs such as those presented in the Avian Power Line Interaction Committee's (APLIC), "Mitigating Bird Collisions with Power Lines: the State of the Art in 1994," and "Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 1996," prepared for the Edison Electric Institute/Raptor Research Foundation, Washington, D.C.

Section 358.200 states that raptor inventories will ensure that no bald or golden eagles, their eyries, or young would be adversely impacted. Please ensure that raptor surveys include all raptor species, not only bald and golden eagles. *The Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (Romin and Muck 1999) identify nest and roost site protection measures for all raptors in the State of Utah. The Guidelines should be used to identify potential impacts to raptors and develop appropriate mitigation strategies.

#### Direct and Indirect Impacts to Wildlife:

Section 333 identifies loss of habitat during construction as the major impact to wildlife in and around the Lila Mine site. However, the Service believes operational impacts, including wildlife disturbance, habitat fragmentation, and vehicle collisions with wildlife are more significant than impacts during construction.

The text assumes that wildlife will accept the disturbance of operational activities or adjust their behavior to coexist with the operation. However, disturbances can result in increased heart rates and displacement by wildlife encountered; either behavior is known to accelerate the consumption of energy reserves which may be essential in allowing that animal to survive winter conditions. Displacement often requires wildlife to use already occupied or less desirable habitats.

Potential for increased roadway mortality of wildlife should be assessed. Raptors scavenging on road-killed prey items are prone to involvement in vehicular collisions; a plan to immediately remove wildlife carcasses from the road should be implemented to reduce potential collisions


with raptors. In addition, low-mobility wildlife species and burrowing animals can incur high mortality during construction activities.

Section 323.300 lists measures to minimize adverse impacts to wildlife. This list should include removal of wildlife carcasses from the road as described above. In addition, we recommend use of native vegetation for reclamation activities where feasible. Restrictions on firearms on the mine site and restrictions on off-road vehicle use should be enforced and not identified merely as possible measures.

Thank you for the opportunity to provide comments. If we can be of further assistance, please contact Laura Romin of this office at (801) 524-5001, ext. 142.

Sincerely,

A handwritten signature in black ink, appearing to read "Reed E. Harris".

 Reed E. Harris  
Field Supervisor

cc: Mr. John Kimball, Director, Utah Division Wildlife Resources, 1594 West North Temple,  
Suite 2110, P.O. Box 146301, Salt Lake City, UT, 84114-6301



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE  
LINCOLN PLAZA  
145 EAST 1300 SOUTH, SUITE 404  
SALT LAKE CITY, UTAH 84115



In Reply Refer To

(CO/KS/NE/UT)

October 14, 1999

Daron R. Haddock  
Utah Division of Oil, Gas, and Mining  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

*Copy Daron*  
*AC 7/007/013*

RE: Reply: Determination of Administrative Completeness, Lila Canyon, Utah American Energy, Inc., Horse Canyon Mine, Carbon and Emery Counties #2

Dear Mr. Haddock:

The U.S. Fish and Wildlife Service (Service) has reviewed the Division of Oil, Gas, and Mining (DOGM) response to our comment letter of April 14, 1999 regarding Determination of Administrative Completeness, Lila Canyon, Utah American Energy, Inc., Horse Canyon Mine, Carbon and Emery Counties.

We commend you on the thoroughness with which you evaluated our comments in our letter of April 14, 1999 and appreciate your effort to incorporate them in your review. Based upon the information presented in your reply to our letter, we believe you have adequately addressed the issues raised in our letter. We appreciate your effort to avoid or minimize impacts to fish and wildlife species and their habitats.

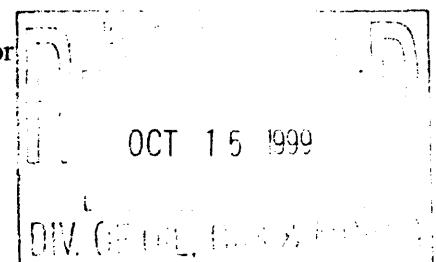
We concur with your assessment of the importance of ensuring that fish and wildlife impacts are addressed prior to permit issuance and look forward to continuing this process on future projects with your office. We feel this process has been a valuable mechanism to insure proper attention has been given to fish and wildlife resources.

Thank you for the opportunity to provide comments. If we can be of further assistance, please contact Scott Gamo, Fish and Wildlife Biologist, of this office at (801) 524-5001 ext 134.

Sincerely,

*Reed E. Harris*

for Reed E. Harris  
Utah Field Supervisor



cc: UDWR - Southeast Region



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE  
LINCOLN PLAZA  
145 EAST 1300 SOUTH, SUITE 404  
SALT LAKE CITY, UTAH 84115

cc: Daron  
Paul  
Dave

In Reply Refer To

(CO/KS/NE/UT)

April 28, 2000

**RECEIVED**

MAY 02 2000

**DIVISION OF  
OIL, GAS AND MINING**

Mr. Darron Haddock, Permit Supervisor  
Utah Division Oil, Gas, and Mining  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

RE: Section 7 Consultation on the Utah American Energy, Inc., Lila Canyon Mine  
application, ACT/007/013-SR98-1

Dear Mr. Haddock:

The U.S. Fish and Wildlife Service (Service) has reviewed your letters of April 3, 2000 and September 20, 1999. Potential impacts to proposed or listed species from mining activities have been previously addressed in the Service's September 24, 1996 Biological Opinion and Conference Report on Surface Coal Mining and Reclamation Operations under the Surface Coal Mining and Reclamation Act of 1977. As part of the terms and conditions of this BO, the regulatory authority must implement and require compliance with any species-specific protective measures developed by the Service field office and the regulatory authority. No species-specific protective measures are considered necessary for the subject project.

We concur with your "not likely to adversely affect" determination for the southwestern willow flycatcher, bald eagle, and listed plant species.

The project proposes to use about 21.3 acre-feet of water annually. Any water depletions from the Upper Colorado River Basin are considered to jeopardize the continued existence or adversely modify the critical habitat of the four Colorado River endangered fish species: Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. However, depletions are addressed by existing inter-agency section 7 agreements. In 1998, the Department of the Interior, the states of Wyoming, Colorado, and Utah, and the Western Area Power Administration established the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (RIP). The purpose of the RIP is to recover listed species while providing for new water development in the Upper Colorado River Basin. In accordance with the RIP, the Service assesses impacts of projects that require section 7 consultation and determines how the RIP will serve as a reasonable and prudent alternative.

**This is your future. Don't leave it blank. - Support the 2000 Census**

For new depletions less than 100-acre feet, and intra-service agreement based on basin-wide cumulative depletions precludes the need for a depletion charge and the RIP recovery activities are considered to offset depletion impacts. Therefore, the depletion fee for this project is waived. It is important to note that the Service is required to consult on and keep track of all depletions, historic or new, of any magnitude. Therefore, UDOGM should report all water depletions to our office.

Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered. Only a Federal agency can enter into formal Endangered Species Act section 7 consultation with the Service. A Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment by giving written notice to the Service of such a designation. The ultimate responsibility for compliance with ESA section 7, however, remains with the Federal agency.


As you are aware, the peregrine falcon was removed from the federal list of endangered and threatened species per Final Rule of August 25, 1999 (64 FR 46542). Protection is still provided for this species under authority of the Migratory Bird Treaty Act (16 U.S.C. 703-712) which makes it unlawful to take, kill, or possess migratory birds, their parts, nests, or eggs. When taking of migratory birds is determined by the applicant to be the only alternative, application for federal and state permits must be made through the appropriate authorities. For take of raptors, their nests, or eggs, Migratory Bird Permits must be obtained through the Service's Migratory Bird Permit Office in Denver at (303) 236-8145.

We recommend use of the *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* which were developed in part to provide consistent application of raptor protection measures statewide and provide full compliance with environmental laws regarding raptor protection. Raptor surveys and mitigation measures are provided in the Raptor Guidelines as recommendations to ensure that proposed projects will avoid adverse impacts to raptors, including the peregrine falcon.

We appreciate your interest in conserving endangered species and migratory birds. If further assistance is needed or you have any questions, please contact Laura Romin, at (801) 524-5001 extension 142.

Sincerely,



 Reed E. Harris  
Utah Field Supervisor

cc: Sandy Vana-Miller, Office of Surface Mining, 1999 Broadway, Suite 3320, Denver, CO 80202



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE  
LINCOLN PLAZA  
145 EAST 1300 SOUTH, SUITE 404  
SALT LAKE CITY, UTAH 84115

In Reply Refer To

FWS/R6  
ES/UT

July 18, 2001

Mr. Daron Haddock, Permit Supervisor  
Utah Division of Oil, Gas, and Mining  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801

RE: Additional Section 7 Consultation on the Utah American Energy, Inc., Lila Canyon Mine  
Application, C/007/013-SR98-1

Dear Mr. Haddock:

The U.S. Fish and Wildlife Service (Service) appreciates the Utah Division of Oil, Gas, and Mining's (UDOGM) continued review of the potential for occurrence and impacts to threatened and endangered species within the influence of proposed actions. As you indicated in your July 16, 2001 letter to our office, previous section 7 consultation did not identify the potential for the Mexican spotted owl to occur within the Lila Canyon mine project area. In an April 28, 2000 letter to your office, the Service concurred that the proposed project was not likely to adversely affect the southwestern willow flycatcher, bald eagle, and listed plant species.

Following issuance of our April 28, 2000 concurrence, we updated our species list (February 2001) to include the Mexican spotted owl as potentially occurring in Emery and Carbon counties. In 1998, a Mexican spotted owl nest site was documented in Desolation Canyon. The remainder of Carbon and Emery counties include suitable habitat for the Mexican spotted owl and we believe they should be evaluated further for owl occupancy. Designation of critical habitat for the species (66 FR 8530, February 1, 2001) also includes portions of Emery and Carbon counties.

Ms. Laura Romin of this office discussed the potential for Mexican spotted owls to occur within the Lila Canyon mine project area with Ms. Susan White and Mr. Paul Baker of your office on July 16, 2001. It is our understanding that recent discussions between your office and Mr. Frank Howe of the Utah Division Wildlife Resources concluded that the Lila Canyon project area provides potentially suitable habitat for the Mexican spotted owl and should be further evaluated in the field.

UDWR, Southeastern Regional Office

We recommend that UDOGM conduct a field evaluation with qualified experts to determine if further analysis and/or surveys for Mexican spotted owls is appropriate in the Lila Canyon project area. Following the field evaluation, the proposed action should be reviewed and a determination made if the action will affect the Mexican spotted owl or its critical habitat. If it is determined by the Federal agency, with the written concurrence of the Service, that the action is not likely to adversely affect listed species or critical habitat, the consultation process is complete, and no further action is necessary. Formal consultation (50 CFR 402.14) is required if the Federal agency determines that an action is "likely to adversely affect" a listed species or will result in jeopardy or adverse modification of critical habitat (50 CFR 402.02).

We appreciate your interest in conserving endangered species. Should you have any questions or need any further information please contact Laura Romin, Wildlife Biologist at (801)524-5001 ext. 142.

Sincerely,



6- Henry R. Maddux  
Utah Field Supervisor

cc: UDWR, Southeastern Regional Office, Attn: Derris Jones

UDWR, Salt Lake City, Attn: Frank Howe, Alan Clark

Sandy Vana-Miller, Office of Surface Mining, 1999 Broadway, Suite 3320, Denver, CO 80202

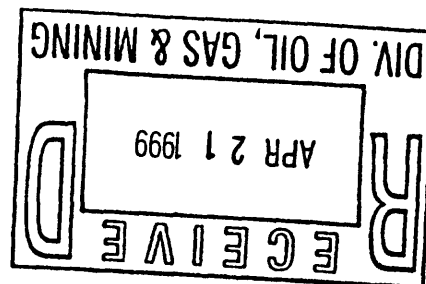




State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WILDLIFE RESOURCES

Michael O. Leavitt  
Governor  
Ted Stewart  
Executive Director  
John Kimball  
Division Director

Southeastern Region  
475 West Price River Drive, Suite C  
Price, Utah 84501-2860  
801-636-0260  
801-637-7361 (Fax)



15 April 1999

Lowell Braxton, Director  
Division of Oil, Gas, & Mining  
1594 W. North Temple #1210  
PO Box 145801  
Salt Lake City, UT 84114-5801

ACT/057/013 #2  
Daron

RE: Lila Canyon Mine Permit

Dear Lowell,

The Division of Wildlife Resources has reviewed the mine permit for the Lila Canyon Mine and has the following comments:

1998 and 1999 raptor surveys in Lila Canyon documented three nests at the mouth of Lila canyon. These nests were shown on maps in the mine permit and are within a 250 yards of the proposed mine facility, however, we found no analysis or discussion of how these nests will be impacted or mitigated for. We believe that the construction of the mine facilities will prohibit further use of these nests by raptors. Additionally, the mine permit stated that there was no foreseeable impact to nesting raptors due to escarpment failure. However, the mine plan maps indicate that some areas with escarpments will be undermined. We therefore see potential for subsidence and subsequent cliff spalling which may impact raptor nests. We feel that analysis and discussion of these items should be included in the mine plan.

Page 5 of Chapter III-Biology states that power lines will be designed and constructed according to the guidelines in Environmental Criteria for Electric Transmission Systems (*Best Technology to Safeguard Raptors*). We feel that the construction of raptor safe power lines is critical. This area is heavily used by foraging raptors, particularly golden eagles, and any poles erected in this area will be used as hunting perches.

Lila Canyon, and more particularly the water sources up the canyon are heavily used by chuckars. We feel that the mining operations will impact these birds. As a mitigation measure we suggest that some artificial water sources of a suitable design (*contact the Division of Wildlife Resources for designs*). These water sources would greatly benefit chuckars, as well as other wildlife in the area.

In the early 1990's fifty bighorn sheep were released or "have moved" between the Green River, the Price River, and Lila Canyon. Some of these bighorn sheep move into Lila Canyon and spend all year there. We agree with the statement on pages 9-10 of Chapter III-Biology that, "use by sheep is expected to be curtailed following [mine] construction." However, there is no discussion of mitigation for this impact. The same is true for deer and pronghorn, mention is made that there will be impacts, but no mitigation measures are discussed. We feel these deficiencies in the mine plan need to be addressed. Finally, the number of vehicles and speed limits on the mine and haul roads dramatically increases the number of game animals killed in vehicle collisions. Discussion regarding the effects of the roads and coal hauling will have on big game is lacking.

Thank you for your consideration of these comments. If you have any questions regarding these comments, please call Chris Colt (Habitat Biologist) at 435-636-0279.

Sincerely,

A handwritten signature in cursive script, appearing to read "Miles Moretti".

Miles Moretti  
Regional Supervisor



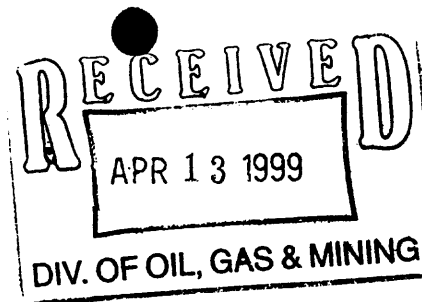
# State of Utah

School and Institutional  
TRUST LANDS ADMINISTRATION

Michael O. Leavitt  
Governor

David T. Terry  
Director

675 East 500 South, Suite 500  
Salt Lake City, Utah 84102-2818  
801-538-5100  
801-355-0922 (Fax)  
<http://www.trustlands.com>



April 9, 1999

Division of Oil, Gas & Mining  
Coal Regulatory Program  
1594 West North Temple, Suite 1210  
Salt Lake City, Utah 84114

BUILDING MAIL

*Larry Harder* : Paul

**RE: Lila Canyon Significant Revision, UtahAmerican Energy Inc., Horse Canyon Mine;  
ACT/007/013-98-1, Carbon County, Utah #2**

Gentlefolk,

The Utah School and Institutional Trust Lands Administration (SITLA) administers trust lands located within and adjacent to the proposed DOGM permit area for the Horse Canyon Mine and Lila Canyon Significant Revision. A description of the affected lands administered by SITLA is as follows.

T16S, R14E, SLB&M

Section 2: All - Surface and Subsurface

Section 3: Lots 3 & 8 - Subsurface, except coal reserved to the U.S.

Section 4: S2SW4 - Subsurface

Section 5: SE4SE4 - Subsurface, except coal reserved to the U.S.

Section 10: SE4SE4 - Subsurface, except coal reserved to the U.S.

Section 12: NW4SE4 - Surface and Subsurface, except coal reserved to the U.S.

Section 15: NE4NE4 - Subsurface, except coal reserved to the U.S.

Section 25: NE4SW4 - Surface and Subsurface, except coal reserved to the U.S.

Section 32: All - Surface and Subsurface

The plan submitted by UtahAmerican Energy Inc. incorrectly lists the Utah Division of Sovereign Lands & Forestry as a landowner and makes no mention of the Utah School and Institutional Trust Lands Administration, 675 E. 500 So. Suite 500, Salt Lake City, Utah 84102. UtahAmerican Energy Inc. presently has no applications, leases, permits, rights of way or rights of entry with SITLA to conduct any activities on or within the above described lands. }

Sincerely,

*John T. Blake*

John T. Blake  
Mineral Resources Specialist



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor  
Kathleen Clarke  
Executive Director  
Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

April 18, 2001

TO:

~~Internal File~~

THRU:

Dave Darby, Project Lead  
Daron Haddock, Permit Supervisor

FROM:

Paul Baker, Reclamation Biologist

RE:

Lila Canyon Cultural Resources, Utah American Energy, Horse Canyon Mine,  
~~C007013~~ SR98(1), Internal File

On April 18, 2001, I went to the office of the Utah Division of State History and obtained copies of three letters the Division of Oil, Gas and Mining (Division) has sent concerning the Lila Canyon Tract of the Horse Canyon Mine. The Division has determined there will be no effects on historic properties and sought concurrence from the State Historic Preservation Office (SHPO). SHPO received the letters September 22, 1999; March 15, 2001; and March 29, 2001.

I met briefly with Jim Dykman, the compliance officer for SHPO, who told me that a non-reply from SHPO on a project of this nature is considered concurrence. He also reviewed the letters and said he felt there should be a determination of no effect based on no historic properties. Therefore, the Division can consider this issue to be resolved.

vs

P:\GROUPS\COAL\WP\007013.HOR\FINAL\pbbshpo.doc



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

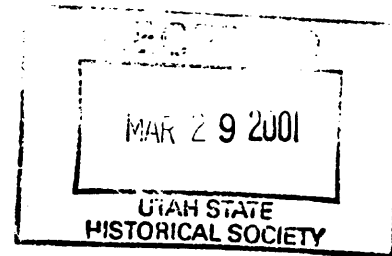
Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

March 27, 2001



1K096

Max J. Evans, Director  
Utah Division of State History  
300 Rio Grande  
Salt Lake City, Utah 84101

Re: Lila Canyon Cultural Resources, UtahAmerican Energy, Inc., Horse Canyon Mine, C/007/0103-SR98(1), Outgoing File

Dear Mr. Evans:

The Division of Oil, Gas and Mining is in the process of reviewing a significant revision for the Horse Canyon Mine called the Lila Canyon Tract. This proposal, although a revision to an existing mining and reclamation plan, includes plans for building new surface facilities and mining in about 4700 acres of federal coal leases that were not previously permitted.

The permit application package includes a cultural resources survey of the area that would be disturbed. This survey was done by Montgomery Archaeological Consultants under State of Utah Antiquities Permit No. U-98-MQ-0399b. The survey located one isolated find, a chert secondary flake which the consultant considered not to be eligible for listing in the National Register of Historic Places. The consultant recommended a determination of no effect. No other surface disturbance is planned at this time.

Based on the information provided, the Division of Oil, Gas and Mining also recommends there would be no effect on significant cultural resources. In order for us to proceed with the permitting process we need to receive your concurrence. Please let us know as soon as possible if you can agree with this determination.

Thank you for your help. If you have any questions, please call me at 801-538-5325 or Paul Baker at 801-538-5261.

Sincerely,

Daron R. Haddock  
Permit Supervisor

pbb/sm

cc: Price Field Office

O:\007013.HOR\DRAFT\SHPO3\_SR98(1).doc



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

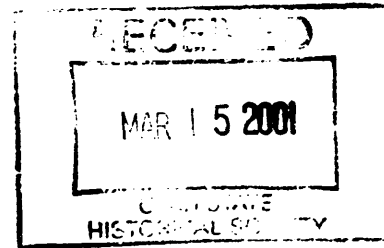
PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)



March 8, 2001

K096

NOV 10 1999

Max J. Evans, Director  
Utah Division of State History  
300 Rio Grande  
Salt Lake City, Utah 84101

Re: Lila Canyon Cultural Resources, UtahAmerican Energy, Inc., Horse Canyon Mine,  
C/007/0103-98(1), Outgoing File

Dear Mr. Evans:

According to our records, we sent you a letter on September 22, 1999, requesting your concurrence on the Lila Canyon Tract of the Horse Canyon Mine. A copy of the letter is enclosed. Although we believe we received a response agreeing with our assessment that there would be no effect on any known significant cultural resources, we have been unable to find a copy of your letter.

If you have a copy of your original letter to us about this project, we would appreciate receiving another copy. If you do not, could you please let us know whether you concur with our determination?

Thank you for your help. If you have any questions, please call me at 801-538-5325 or Paul Baker at 801-538-5261.

Sincerely,

Daron R. Haddock  
Permit Supervisor

pbb/sm

Enclosure:

cc: Price Field Office

O:\007013.HOR\FINAL\SHPO2\_SR98(1).DOC

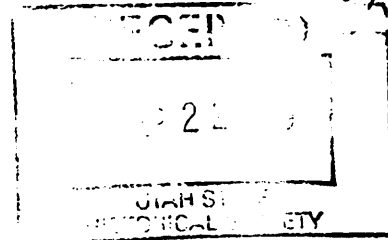


# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor  
Kathleen Clarke  
Executive Director  
Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)



September 22, 1999

Max Evans, Director  
Utah Division of State History  
300 Rio Grande  
Salt Lake City, Utah 84101

Re: Lila Canyon Cultural Resources, UtahAmerican Energy, Inc., Horse Canyon Mine,  
ACT/007/0103-98-1, File #3, Carbon and Emery Counties, Utah

Dear Mr. Evans:

On March 5, 1999, the Division of Oil, Gas and Mining sent you a determination of administrative completeness for a significant revision to the Horse Canyon mining and reclamation plan. This revision involves building a new mine at the mouth of Lila Canyon in Emery County.

The permit application package includes a cultural resources survey of the area that would be disturbed. This survey was done by Montgomery Archaeological Consultants under State of Utah Antiquities Project Permit No. U-98-MQ-0399b. The survey located one isolated find, a chert secondary flake, and the consultant considered this was not eligible for listing in the National Register of Historic Places. The consultant recommended a determination of no effect. No other surface disturbance is planned at this time.

Based on the information provided, the Division of Oil, Gas and Mining also recommends there would be no effect on significant cultural resources and would like to receive your concurrence. Please let us know if you can agree with this determination.

Sincerely,

Daron R. Haddock  
Permit Supervisor



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office  
P.O. Box 45155  
Salt Lake City, UT 84145-0155

In Reply Refer To:

3453

SL-066145

SL-066490

SL-069291

U-014217

U-014218

U-0126947

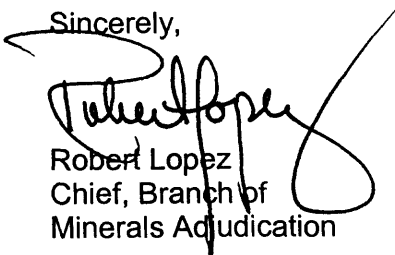
(UT-932)

Mr. Lowell Braxton, Director  
Utah Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

Dear Mr. Braxton:

Enclosed, for your information, are copies of assignments from Intermountain Power Agency to UtahAmerican Energy, Inc. for the following Federal coal leases: SL-066145, SL-066490, SL-069291, U-014217, U-014218, and U-0126947.

Sincerely,

  
Robert Lopez  
Chief, Branch of  
Minerals Adjudication

Enclosures

Six Coal Lease Assignments

CC letter w/o Dr. [unclear]  
envs. to Ryst [unclear]  
file orig in IPA.  
cool file (see  
PGL  
for  
details)  
Pm.

ACT/007/013  
[unclear]

**RECEIVED**

SEP 11 2000

DIVISION OF  
OIL, GAS AND MINING

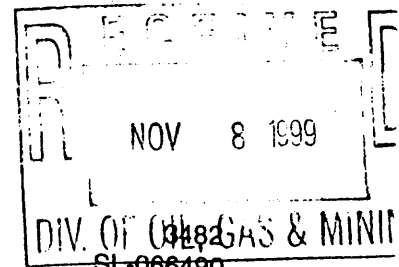




# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Price Field Office  
125 South 600 West  
Price, Utah 84501



CERTIFIED MAIL - RETURN RECEIPT REQUESTED  
Certified No. Z 580 925 460

Mr. Hershiel H. Hayden  
President  
UtahAmerican Energy, Inc  
Number 139  
30799 Pinetree Road  
Pepper Pike, Ohio 44124

NOV - 5 1999  
*Copy Sharon - Dave*  
*Act/002/013 #2*  
*(2-sided)*  
*all*

Re: Resource Recovery and Protection Plan (R2P2) Lila Canyon Mine, Utah American Energy, Inc.  
(UAE), December 1998

Dear Mr. Olsen:

The Bureau of Land Management (BLM) received UAE's R2P2 for the Lila Canyon Mine. This letter is to notify you that we have completed our preliminary review of UAE's R2P2 regarding the Lila Canyon Mine. The purpose of our review is to determine compliance with the Mineral Leasing Act of 1920, as amended; the regulations at 43CFR 3480; the lease terms and conditions and to ensure that maximum economic recovery (MER) will be achieved.

Our determination of the subject R2P2 is as follows:

- ◆ General Comment: The Lila Canyon Mine Plan (R2P2) should be a stand-alone document within the OSM Mine and Reclamation Plan, without reference to past documents submitted to the BLM. It should detail operations at the Lila Canyon Mine as they stand and how UAE plans to operate them. Certain items (i.e., equipment specifications, roof control and ventilation plan, etc.) may not be readily submittable at the present time; however, within each section in the mine plan, statements concerning their submittals should be made.
- ◆ General Comment: All required data which is clearly duplicated in other portions of the Permit Application Package or other submittals (i.e., MSHA) may be used to fulfill the requirements of 43 CFR 3480, provided the cross-reference is clearly stated (volume, section, page, etc.). However, a copy of the relevant portion must be included in the R2P2 (43 CFR 3482.1(c)(6)). All relevant mining or mining-related items must be included in the Resource Recovery and Protection Plan (Enclosure 1).
- ◆ Under 2.2 - Responsible Person. Identify responsible party of the designated operator/sub-lessee.
- ◆ Under 3.0 Geology and Resources (p. 3-1). This section does address most of the points needed. A brief, but precise, description and map of the geology and soils of the area, including types, extent, lithologies, structural features such as bedding, faults, folds, thicknesses, significant physical characteristics of the deposit; and also describe the location, characteristics, and evaluation of a potential geologic hazards (e.g., slides, faults, sink holes, etc.). All potential adverse geological conditions that may affect extraction of the recoverable coal reserves should be addressed in this section.

- ◆ Under 3.6 - Exploration. Submit a detailed description of proposed exploration activities. This narrative description should include the method of exploration (in-mine and surface), types and quantity of equipment to be used.

- ◆ Detailed mining methods:

This section shall include, in addition to your schedule of anticipated rates of mine production, a complete detailed description of the mining method(s) to be employed throughout the life of the operation, including schedules of projected mine development utilizing maps, cross-sections, diagrams, etc. This should include details related to such items as estimated number, size, depth, and location of adits, shafts, and ventilation schemes and openings; room-and-pillar layouts, longwall panel layouts and/or combination layouts; information on whether the entire thickness of the commodity is to be mined or whether part is to be left for floor or roof support; recovery factors; transportation, haulage, and handling systems (flow diagram); type(s) of ground support; explosives--types(s) and methods of use; types, size, specifications and scheduling of production equipment; mine dewatering plans and equipment; mine power and utility systems; distribution system; and schedules of personnel requirements, including skill breakdown. List all basic mining equipment and provide manufacturer's specifications.

- ◆ Explanation of how MER of the Federal coal is achieved. If a coalbed or portion thereof is not to be mined or is to be rendered unminable by the operation, the operator/lessee shall submit appropriate justification. The 43 CFR 3482.2(a)(2) states, "No resource recovery and protection plan or modification thereto shall be approved which is not found to achieve MER of the Federal coal." The determination of MER shall be made by the authorized officer based on the review of the R2P2. MER is defined within 43 CFR as meaning that based on standard industry operating practices, all profitable portions of a leased Federal coal deposit must be mined. At the time of MER determinations, consideration will be given to: existing proven technology; commercially available and economically feasible equipment; coal quality, quantity, and marketability; safety, exploration, operating, processing and transportation costs; and compliance with applicable laws and regulations. The requirements of MER does not restrict the authority of the authorized officer to ensure the conservation of the recoverable coal reserves and other resources and to prevent the wasting of coal. This discussion should include all data and information for elimination any portions of the Sunnyside seam due to marketability, overburden, faulting and/or sulfur content issues. To ensure that adequate data is available for the MER determination, the following is required:

- 1) Mining Costs. A description of the cost for all mining equipment, associated equipment, personnel costs, ancillary equipment costs, production costs, overhead and other cost provisions.
- 2) Production Costs. Statement as to production costs or projected production costs.
- 3) Other requirements (contracts, etc.) or costs that have a direct or indirect influence on MER.
- 4) Recovery Factors (longwall, room-and-pillar and development).

- ◆ Submit approved roof-control plan and ventilation plan for the Lila Canyon Mine.
- ◆ Provide appropriate justification (design criteria) for the size of all protective barrier pillars utilized in the mine layout in accordance with 43 CFR 3482.1 (c)(4)(v)(C), the location of where pillars will be left and an explanation of why these pillars will not be mined.
- ◆ Abandonment. Briefly discuss the planned methods for properly abandoning all drill holes, shafts, pits, adits, or other opening, including access and haul roads (temporary and permanent) and the removal

of all equipment, materials and facilities to protect the unminable recoverable coal reserves and other resources.

- ♦ Maps as required in Enclosure 1, Section II Maps.

BLM has determined that the information contained in the R2P2 for the Lila Canyon Mine does in part satisfy the Mineral Leasing Act of 1920, as amended, the regulations at 43 CFR 3480 and the lease terms and stipulations. However, the concerns identified above must be addressed. Upon resubmittal of the R2P2 with the required information, a final review will be performed.

If you have any questions, please contact George Tetreault at the Price Field Office at (435) 636-3604.

Sincerely,

**Richard L. Manus**

Richard L. Manus  
Field Manager

Enclosure  
Resource Recovery and Protection Plan

cc: UT-921, SD, Utah  
Utah Division of Oil, Gas and Mining  
355 West North Temple Street  
3 Triad Center Ste.350  
Salt Lake City, Utah 84180-1203  
Ranvir Singh  
Office of Surface Mining  
Reclamation and Enforcement  
1999 Broadway, Suite 3320  
Denver, Colorado 80202-5733  
Jay Marshall  
Utah American Energy, Inc.  
P. O. Box 986  
Price, Utah 84501

## ENCLOSURE 1

### R2P2 REQUIREMENTS

The R2P2 is the plan required by Section 7(c) of the Mineral Leasing Act (MLA). The Permit Application Package (PAP), including the R2P2, is submitted to the Assistant Secretary - Lands and Minerals Management, in accordance with Section 523 of Surface Mining Control and Reclamation Act. The Bureau formally recommends approval or disapproval of the R2P2 in Utah to Division of Oil, Gas and Mining (representing Office of Surface Mining Reclamation and Enforcement (OSM)) as part of the approval process. The R2P2, at a minimum, must meet the requirements of :

1. The MLA of 1920, as amended and supplemented,
2. The regulations at 43 CFR 3480,
3. The lease terms and conditions, and
4. Maximum Economic Recovery (MER).

Resource Recovery and Protection Plans include practices to: recover efficiently the recoverable reserves subject to these rules; avoid wasting or damage to or degradation of coal-bearing formations; ensure MER of the Federal coal; and ensure that other resources are protected during exploration, development, and mining, and upon abandonment.

Mining Plan means an operation and reclamation plan that must be approved pursuant to Section 7(c) of MLA, prior to commencement of operations that might cause a significant disturbance to the environment. The "mining plan" must show that the proposed operation meets the requirements of MLA for development, production, resource recovery and protection, diligent development, continued operations, MER and the regulations of 43 CFR Part 3480 for the life of mine, containing all requirements set out at 43 CFR 3482.1(b), and that must be approved prior to commencement of operations.

All data and plans for operations on Federal lands submitted shall be available for inspection under the Freedom of Information Act (FOIA), as amended, except that proprietary geological and geophysical data and interpretation of such data, maps, trade secrets, and financial information required to be submitted shall not be available for inspection without the consent of the lessee.

*In order to allow for an expedited review of the R2P2, the Permit Application Package (PAP) should include an individual volume(s) containing all the required information and data, marked as the R2P2. All required data which is clearly duplicated in other portions of the Permit Application Package or other submittals (i.e., MSHA) may be used to fulfill the requirements of 43 CFR 3480, provided the cross-reference is clearly stated. A copy of the relevant portion must be included in the R2P2 (43 CFR 3482.1(c)(6)). All items that are relevant (mining or mining related) must be included in the Resource Recovery and Protection Plan.*

#### I. Mining Plans (3482.1(b))

##### A. Introduction

- 1) Names, addresses and telephone numbers of persons responsible for operations to be conducted under the approved plan to whom notices and orders are to be delivered and name and addresses of the operator/lessees.

- 2) Federal lease numbers.

B. Description of Existing Area

- 1) Surface topography, use and surface and subsurface ownership.

General description and map of regional features, including topography, transportation networks, population centers, cultural and recreation facilities, other mines, surface and mineral ownership within the area and land usage.

- 2) Geologic conditions.

A brief but precise description and map of the geology and soils of the area including types, extent, lithologies, structural features such as bedding, faults, folds, thicknesses, significant physical characteristics of the deposit; and also describe the location, characteristics, and evaluation of any potential geologic hazards (e.g., slides, faults, sink holes, etc.).

C. Proposed Mining Activity

- 1) Development drilling program (surface and in-mine).

Include access, methods, time sequence, duration, expected depth, types of logging, equipment (type and size), abandonment methods and site restoration.

- 2) Description of resource - nature, extent, recovery.

- a) An estimate of the coal reserve base, minable coal reserve and recoverable coal reserves for each Federal coal lease within the R2P2.
- b) Detailed description of the mineral resources determined to exist beneath the leased lands including grade (e.g., for coal, BTU content, ash, water, sulphur, volatile matter and carbon content) and present estimates of recoverability. Justification for not mining the full thickness if only part of a coalbed will be mined; justification for mining only a particular bed if multiple beds are present so that future environmental disturbance through resumption of mining will be minimized; and consideration given to ensuring the maximum practical recovery of the mineral resource.
- c) If the R2P2 covers an LMU, the coal reserve base, minable coal reserve and recoverable coal reserves for the non-Federal lands will be included in the R2P2.

- 3) Detailed mining methods.

This section shall include detailed schedules of anticipated rates of mine production accompanied by complete descriptions of the mining method(s) to be employed throughout the life of the operation, including schedules of projected mine development utilizing maps, cross-sections, diagrams, etc.

- a) For underground mining - the above would include details related to such items as estimated number, size, depth, and location of adits, shafts, and ventilation schemes

and openings; room-and-pillar layouts, longwall panel layouts and/or combination layouts; information on whether the entire thickness of the commodity is to be mined or whether part is to be left for floor or roof support; recovery factors; transportation, haulage, and handling systems (flow diagram); type(s) of ground support; explosives--types(s) and methods of use; types, size, specifications and scheduling of production equipment; mine dewatering plans and equipment; mine power and utility systems; distribution system; and schedules of personnel requirements, including skill breakdown.

4) Beneficiation and Coal Preparation.

A detailed description and location map of all beneficiation or preparation facilities including size, recovery factors, waste products, use, major equipment and processes, chemical types and quantities and flow diagrams of the anticipated processing and upgrading operations.

5) Abandonment.

Briefly discuss the planned methods for properly abandoning all drill holes, shafts, pits, adits, or other opening, including access and haul roads (temporary and permanent) and the removal of all equipment, materials and facilities to protect the unminable recoverable coal reserves and other resources.

D. Proposed Reclamation Activity

1) Schedule.

- a) An estimated timetable for the removal of all equipment and materials from the mine, including but not limited to hazardous and toxic materials.
- b) Land-disturbing activities including topsoil removal and storage, overburden removal and disposal, tailings disposal, pit excavation, surface construction, roads, powerlines, etc.
- c) An estimated reclamation timetable including grading, backfilling, contouring, topsoil replacement (including methods for avoiding excessive soil compaction during wet weather), soil conditioning and stabilization, cultivating, seeding, and pit wall reduction. Consideration must be given to making the reclamation operations consistent with applicable state and local land use plans and programs. Reclamation shall be undertaken as contemporaneously as practicable with mining.

2) Reclaimed land forms - alternatives.

A description and topographic map(s) showing land form changes and water impoundments with time and the ultimate land forms upon completion of mining; including the consideration given to developing reclamation in a manner consistent with local physical, environmental, and climatological conditions and current mining and reclamation technology. Alternative land forms should be proposed.

### 3) Techniques.

- a) Techniques and equipment for topsoil removal, storage, erosion prevention, replacement and stabilization.
- b) Techniques and equipment for land form shaping, erosion prevention, and stabilization; including logs and analyses of core samples and a description of the method of depositing the spoils based on these samples.
- c) Techniques and equipment for topsoil replacement, soil conditioning (mulching, fertilization, disking, harrowing, etc.).
- d) Planting techniques and schedules, seed mixture, rationale for seed mixture selection, alternate plant species, effect of climatic conditions.
- e) Planned supplemental watering practices and irrigation if applicable.

### 4) Costs.

An estimate of the cost per acre of reclamation including a separate breakdown for the cost of backfilling and grading, replacement of topsoil, seeding and/or planting, irrigation, fertilizing, and maintenance.

## E. Maximum Economic Recovery (MER) Determination

Explanation of how MER of the Federal coal is achieved. If a coalbed or portion thereof, is not to be mined or is to be rendered unminable by the operation, the operator/lessee shall submit appropriate justification. The 43 CFR 3482.2(a)(2) states, "No resource recovery and protection plan or modification thereto shall be approved which is not found to achieve MER of the Federal coal." The determination of MER shall be made by the authorized officer based on the review of the R2P2. MER is defined within 43 CFR as meaning, based on standard industry operating practices, all profitable portions of a leased Federal coal deposit must be mined. At the time of MER determinations, consideration will be given to: existing proven technology; commercially available and economically feasible equipment; coal quality, quantity, and marketability; safety, exploration, operating, processing and transportation costs; and compliance with applicable laws and regulations. The requirements of MER does not restrict the authority of the authorized officer to ensure the conservation of the recoverable coal reserves and other resources and to prevent the wasting of coal. To ensure that adequate data is available for the MER determination, the following is required:

- 1) Mining Costs. A description of the cost for all mining equipment, associated equipment, personnel costs, ancillary equipment costs, production costs, overhead and other cost provisions.
- 2) Production Costs. Statement as to production costs or projected production costs.
- 3) Other requirements (contracts, etc.) or costs that have a direct or indirect influence on MER.

## II. Maps

All maps submitted in connection with exploration or mining plans shall include the following information as appropriate to the proposed operation:

### A. General - All maps or aerial photos should show:

- 1) Mine name; lessee's name; lease number; county; sections, townships(s) and range(s); and lease boundary lines.
- 2) LMU boundary line, if applicable.
- 3) Map scale; register of map extension dates; and true north designation.
- 4) Legend describing all symbols on map.
- 5) Public survey land lines and corners, distance from mine opening to corner, outline of lease boundary.
- 6) Locations and surface elevations of drill holes.
- 7) Numbers of permanent survey stations.
- 8) The mine workings.
- 9) Topographic, cultural, and natural drainage features, roads, and vehicular trails; name of watershed, and location of surface streams or tributaries.

### B. Surface maps for underground mines should also show:

- 1) General topography and existing surface improvements.
- 2) Surface ownership and boundaries.
- 3) Coal outcrop showing dips and strikes.
- 4) Location of planned roads; railroad trackage; buildings and other improvements; refuse or waste disposal areas; ore storage; drill holes; mine portals; and erosion-control structures including dams, and settling or treatment ponds.
- 5) Isopach maps of each coalbed to be mined and the overburden and interburden.

### C. Underground mine operations maps should also show:

- 1) Planned mine layout including location and dimensions of shafts, slopes, drifts, main haulageway, air courses; entries and barrier pillars; and proposed widths of all slopes, rooms and crosscuts.
- 2) All mine workings and worked-out areas; a mineral section at each entry face; location of surface mine fans; position of all fire walls, dams, main pumps, fire pipelines, permanent



ventilating stoppings, doors, overcasts, undercasts, permanent seals and regulators; direction of the ventilating currents in the various parts of the mine; sealed areas, known bodies of standing water in or above the mine workings; areas affected by squeezes; the elevations of all surface and underground levels of all shafts, slopes, drifts; and the elevation of the floor or bottom of the mine workings at regular intervals in main entries, panels, or sections, and sump areas.

- 3) Typical structure cross sections showing all coal contained in the coal reserve base. Cross-section maps should depict the following information:

The nature and depth of the various state of over-burden; the location and quality of any subsurface water encountered; the nature of the stratum immediately above and beneath the zone to be mined; all mineral crop lines and the strike and dip of the beds to be mined; existing or previous surface mining limits; locations and extent of known workings; location of aquifers; estimated elevation of the water table and appropriate cross sections of the anticipated final surface configuration that will be achieved pursuant to the operator's proposed reclamation activities.

- 4) Planned sequence of mining.

- a) Underground mine - General layout of proposed underground mine showing planned sequence for the first five (5) years, thereafter, in five year increments;

E. Other:

- 1) All excavations/extractions in each separate bed shall be shown in such a manner that production for any royalty period can be accurately ascertained.
- 2) Accuracy of maps furnished shall be certified by a professional engineer, professional land surveyor, or other professionally qualified person.



*incoming 001/013*  
*cc: TAM/Dan*  
**RECEIVED**  
**United States Department of the Interior**

**BUREAU OF LAND MANAGEMENT**

Price Field Office  
125 South 600 West  
Price, Utah 84501

**MAR 06 2000**

**DIVISION OF  
OIL, GAS AND MINING**

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**  
Certified No. Z 182 430 776

Mr. Hershiel H. Hayden  
President  
UtahAmerican Energy, Inc.  
Number 139  
30799 Pinetree Road  
Pepper Pike, Ohio 44124

3482  
SL-066490  
U-014218  
U-0126947  
U-014217  
SL-066491  
SL-066145  
(UT-070)

**MAR - 2 2000**

Re: Resource Recovery and Protection Plan (R2P2) Lila Canyon Mine, UtahAmerican Energy, Inc. (UAE), December 1998 (Revised January 24, 2000)

Dear Mr. Hayden:

The Bureau of Land Management (BLM) received UAE's revised R2P2 for the Lila Canyon Mine. This letter is to notify you that the Bureau of Land Management (BLM) has completed our review of UAE's revised R2P2 regarding the Lila Canyon Mine. The purpose of our review is to determine compliance with The Mineral Leasing Act of 1920, as amended; the regulations at 43CFR 3480; the lease terms and conditions and to ensure that maximum economic recovery (MER) will be achieved.

The Lila Canyon Mine Plan (R2P2) is a pre-operations mine plan. Therefore, detailed information on operations at the Lila Canyon Mine are preliminary in scope, and particulars of how the mine would operate are initiatory or projected. Certain items and information (i.e., equipment specifications, roof-control and ventilation plan, mining economics, etc.) will have to be submitted at the time operations commence. All relevant mining or mining-related items that are required to be included in the Resource Recovery and Protection Plan and that are not available at the present will be submitted within ninety (90) days of commencement of underground coal production. Our determination of the subject R2P2 is as follows:

- ♦ The following updated detailed mining methods will be submitted at time of commencement of underground coal operations.

This section shall include, in addition to your schedule of anticipated rates of mine production, a complete detailed description of the mining method(s) to be employed throughout the life of the operation, including schedules of projected mine development utilizing maps, cross-sections, diagrams, etc. This should include details related to such items as estimated number, size, depth, and location of adits, shafts, and ventilation schemes and openings; room-and-pillar layouts, longwall panel layouts and/or combination layouts; information on whether the entire thickness of the commodity is to be mined or whether part is to be left for floor or roof support; recovery factors; transportation, haulage, and handling systems (flow diagram); type(s) of ground support; explosives--types(s) and methods of use; types, size, specifications and scheduling of production equipment; mine



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Price Field Office  
125 South 600 West  
Price, Utah 84501  
(435) 636-3600

2800  
UTU-77122  
(UT-070)

Ms. Mary Ann Wright  
Utah Division of Oil Gas and Mining  
P. O. Box 145801  
Salt Lake City, Utah 84114-5801

RE: Lila Canyon MRP (ACT/007/013)

Dear Ms. Wright:

On November 27, 2000, a Decision Record (copy enclosed) was signed for the Lila Canyon Mine Project. The decision was made to grant right-of-way to Utah American Energy to construct, operate and maintain mine related surface facilities on public lands. In addition the decision was made to grant Emery County a right-of-way to construct operate and maintain a coal haul access road and to grant right-of-way to construct, operate and maintain a 46 kV powerline. Approval of the three rights-of-way would be contingent upon mine plan approval.

The Bureau of Land Management is prepared to grant the right of entry to these public lands. However, the case is in litigation and we are waiting for a decision from the Interior Board of Land Appeals whether to grant the appellants a stay. When this issue is resolved we would be in the position to grant right-of-way.

Our understanding is that the Utah Division of Oil Gas and Mining is unable to approve the mine plan until the UEI has demonstrated the right of entry. In several other similar cases a letter from the Bureau of Land Management has been sufficient to demonstrate the right of entry prior to the actual grants being issued. Our hope is that we can continue providing good customer service by utilizing this arrangement. Another option is that we could have a simultaneous signing of the MRP and the right-of-way grants. Please let us know as soon as possible what option will meet our objectives.

If you have any questions, please feel free to contact Mark Mackiewicz of my staff at (435) 636-3616.

Sincerely,

Tom Rasmussen  
Acting Field Manager

Enclosure

cc: Mr. Clyde Borrell

DEC 26 2000

*Copy Mary Ann Wright  
12/07/013  
Daron  
Dave  
Ingram*

RECEIVED

DEC 28 2000

DIVISION OF  
OIL, GAS AND MINING

**DECISION RECORD**

**ENVIRONMENTAL ASSESSMENT UT-066-98-53**

**FINDING OF NO SIGNIFICANT IMPACT FOR  
PACIFICORP dba UTAH POWER 69 KV TRANSMISSION LINE  
AND  
CANYON FUEL COMPANY LLC. ASSOCIATED LINK CANYON  
BREAKOUT AND SUBSTATION**

**DECISION**

It is the decision of the Field Manager of the Bureau of Land Management to select alternative 2, the proposed action, development of the Link Canyon 69 kV power line, breakout and substation. It is also the decision of the Field Manager to grant a right-of-way and temporary use permit to Pacificorp to construct, operate, maintain and terminate a 69 kV powerline. The proposed action outline in the EA as well as the maintenance and operation plan would be attached to the right-of-way grant and incorporated into and made a part of the grant instrument.

**Link Canyon 69 k Power Transmission Right-of-Way UTU-74346**

The grant would be 50 feet in width, 25 feet on each side of a described centerline and would be approximately 24, 878 feet in length, encompassing 28.56 acres more or less. The right-of-way would be subject to stipulations outlined in regulation, and stipulations developed as a result of mitigation in the EA.

In addition a temporary use permit (TUP) would be issued in association with the right-of-way. The TUP would be 5 feet on each side of the permanent right-of-way and encompass 5.71 acres more or less. The TUP would authorize the use of public lands adjacent to the permanent right-of-way for construction purposes.

Authority for issuing the subject right-of-way and the temporary use permit is outlined in the Federal Land Policy and Management Act of 1976 (90 Stat. 2776, 43 U.S.C 1761) and in Title 43 of the Code of Federal Regulations, part 2800.

**MITIGATION**

As noted in the EA, the maintenance and operation plan described in Chapter II was designed to minimize most impacts to resources within the project area., In addition, low impact construction and maintenance measures were incorporated into the proposed action. The following mitigation would be completed for the resources noted below.

## **Wildlife**

By completing the proposed construction after April 15 and before December 1 winter deer and elk use in the area would not be significantly impacted.

## **Raptor Nest Protection**

To mitigate impacts to raptor nests and utilization of the project area, projects that would monitor and benefit raptors would be conducted. These actions would include:

1. Where active raptor nests are located, construction would not occur until after August 16 as required by the San Rafael Resource Management Plan and Manti-LaSal Forest Resource Plan.
2. Creation of line of site zone of protection buffer areas around active nests and yearly monitoring of raptor use within the Link Canyon area.

## **MONITORING**

The proposed project will be monitored by a third party compliance contractor as well as inspectors of the Bureau of Land Management. Following construction and reclamation, seeded and hand planted areas will be monitored for revegetation success. Should unsatisfactory reclamation results occur, the right-of-way holder would be required to reseed or replant bare root stock or seedlings.

## **MANAGEMENT CONSIDERATIONS**

The rationale to approve the proposed action was primarily based on the analysis of the environmental impacts presented in the environmental assessment as modified in this decision record. The company has incorporated a variety of measures into the proposed action to mitigate potential impacts from the project. In addition, extensive mitigation has been developed to minimize impacts to the resources. The positive impacts of approving the proposed action outweigh the environmental impacts of the proposal.

As stated under the objectives for the regulations (43 CFR 2800) governing the issuance of rights-of-way, it is the objective of the Secretary of Interior to grant rights-of-way and temporary use permits covered by the regulations to any qualified individual, business entity, or governmental entity and regulate, control and direct the use of said right-of-way on public lands. In doing so the Secretary shall protect the natural resources associated with the public lands and adjacent, private or other lands administered by a government agency and prevent unnecessary and undue environmental damage to the lands and resources.

## ALTERNATIVES

Three alternatives, no action, proposed action, and an alternative location of the substation were considered and analyzed in the environmental assessment.

Under the No Action Alternative (Alternative 1) the current situation would be maintained. None of the facilities described in the proposed action would be constructed. This alternative is discussed on 10 of the environmental assessment. Alternative 3, discussed on pages 15 and 16 of the environmental assessment is exclusive to the substation location. This alternative would locate the substation approximately 250 feet east of the location proposed in alternative 2.

## PUBLIC INVOLVEMENT

During the initial scoping and preparation of the environmental assessment, the Bureau of Land Management and Forest Service through its third party contractor, received input from federal, state and local agencies. A thirty (30) day public comment period was initiated on July 21, 1998. Comments will be received until August 20, 1998. Comments will be reviewed and taken into consideration. This decision may be modified in response to substantial issues or comments raised during the public comment period.

/S/ Tom Rasmussen  
Acting Field Manager

10/27/00  
Date

2810  
UTU-74346  
(UT-066)

**FINDING OF NO SIGNIFICANT IMPACT FOR  
PACIFICORP dba UTAH POWER 69 KV TRANSMISSION LINE  
AND  
CANYON FUEL COMPANY LLC. ASSOCIATED LINK CANYON  
BREAKOUT AND SUBSTATION**

**ENVIRONMENTAL ASSESSMENT UT-066-98-53**

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined that the impacts are not expected to be significant and an environmental impact statement is not required.

A thorough analysis of the proposed action as well as two alternatives was made in the document. Scoping identified potential impacts to soils, vegetation, hydrology, wildlife, and visuals. The analysis determined that impacts would occur to the resources noted above, but that most impacts could be mitigated through design (mitigation build into the proposal). In those cases where the impacts could not be totally mitigated the impacts were not major in scope or would be of short duration.

/S/ Tom Rasmussen  
Acting Field Manager

10/27/00  
Date

FORM 2800-14  
(August 1985)

Issuing Office  
Utah State Office  
Price Field Office

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
RIGHT-OF-WAY  
SERIAL NUMBER UTU-76614

- 
1. A right-of-way is hereby granted pursuant Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761).
  2. Nature of Interest:
    - a. By this instrument, the holder:

Utah American Energy Inc  
P. O. Box 986  
Price, Utah 84501

receives a right to construct, operate, maintain and terminate a 46 kV powerline right-of-way on public lands described as follows:

Salt Lake Meridian, Utah  
T.16 S., R.14 E.

Section	15	S2SW4;
	21	N2N2;
	22	NW4NW4.
    - b. The right-of-way granted herein for the is feet 50 feet wide, 6864 feet long, and contains 7.8 acres, more or less.
    - c. This instrument shall terminate thirty (30) years from its effective date unless, prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.
    - d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.



- c. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration or prior termination of the grant.

3. Rental:


For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer, unless specifically exempted from such payment by regulation. Provided, however, the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4. Terms and Conditions:


- a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations, part 2800.
- b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d), or as directed by the authorized officer.
- c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided, however, a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.
- d. The stipulations, plans, maps, or designs set forth in Exhibit A and Exhibit B, dated July 23, 2001, attached hereto are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety. All commitments referenced in Chapter 2, Alternative B, all mitigation outlined in Chapter IV and all other applicable sections of the environmental assessment for the project entitled *Development of the Lila Canyon Project, Emery County, Utah* (EA NO. UT-070-99-22, July 2000) are to be incorporated into a Plan of Development and approved by BLM prior to issuance of a notice to proceed. This plan of development will be incorporated into and made a part of this grant instrument as fully and effectively as if set forth herein in its entirety.
- e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.
- f. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.

- g. Ninety (90) days prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a joint inspection of the right-of-way area. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures or surface material, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the holder's commencement of any termination activities.

IN WITNESS WHEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

  
(Signature of Holder)

 (Acting)  
(Signature of Authorized Officer)

  
(Title)

Field Manager  
(Title)

7/25/01  
(Date)

7/27/01  
(Effective Date of Grant)

**JUL 23 2001**2850  
UTU-76614  
(UT-070)**Exhibit A  
Stipulations**

1. The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way/permit in strict conformity with its plan of development. A Plan of Development shall be submitted and approved prior to issuance of a notice to proceed as outlined in stipulation No.4. **Note: only that part of the proposed action related to the construction operation, maintenance and reclamation of the 46 kV powerline located on public lands apply. Construction schedule dates have changed.** Any relocation, additional construction, or use that is not in accord with the approved plan(s) of development, shall not be initiated without the prior written approval of the authorized officer. A copy of the complete right-of-way grant/permit, including all stipulations and approved plan(s) of development, shall be made available on the right-of-way/permit area during construction, operation, and termination to the authorized officer. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment.
2. The holder shall contact the authorized officer at least fourteen (14) days prior to the anticipated start of construction and/or any surface disturbing activities. The authorized officer shall require and schedule a preconstruction conference with the holder prior to the holder's commencing construction and/or surface disturbing activities on the right-of-way/permit. The holder and/or his representative shall attend this conference. The holder's contractor, or agents involved with construction and/or any surface disturbing activities associated with the right-of-way, shall also attend this conference to review the stipulations of the grant including the plans(s) of development.
3. The holder shall designate a representative(s) who shall have the authority to act upon and to implement instructions from the authorized officer. The holder's representative shall be available for communication with the authorized officer within a reasonable time when construction or other surface disturbing activities are underway.
4. The holder shall not initiate any construction or other surface disturbing activities on the right-of-way/permit without the prior written authorization of the authorized officer. Such authorization shall be a written notice to proceed issued by the authorized officer. Any notice to proceed shall authorize construction or use only as therein expressly stated and only for the particular location or use therein described. A notice to proceed shall not be issued until the mine plan is approved by the Office of Surface Mining Reclamation and Enforcement.

5. The authorized officer may suspend or terminate in whole, or in part, any notice to proceed which has been issued when, in his judgement, unforeseen conditions arise which result in the approved terms and conditions being inadequate to protect the public health and safety or to protect the environment.
6. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.
7. Unless otherwise agreed to by the authorized officer in writing, powerlines shall be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Powerlines," The State of the Art in 1997, by the Avian Powerline Interaction Committee. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication are "eagle safe." Such proof shall be provided by a raptor expert approved by the authorized officer. The BLM reserves the right to require modifications or additions to all powerline structures placed on this right-of-way/permit, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.
8. Use of pesticides shall comply with the applicable Federal and state laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the holder shall obtain from the authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer. Emergency use of pesticides shall be approved in writing by the authorized officer prior to such use.
9. The holder shall survey and clearly mark the centerline and/or exterior limits of the right-of-way/permit area, as determined by the authorized officer.
10. The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way/permit within the authorized limits of the right-of-way/permit.

11. The holder shall permit free and unrestricted public access to and upon the right-of-way/permit for all lawful purposes except for those specific areas designated as restricted by the authorized officer to protect the public, wildlife, livestock, or facilities constructed within the right-of-way/permit.
12. The holder shall seed all disturbed areas with the seed mixture(s) included in its plan of development. Seeding shall take place from October through mid November. The seed mixture(s) shall be planted in the amounts specified in pounds of pure live seed (PLS)/acre. There shall be no primary or secondary noxious weed seed in the seed mixture. Seed shall be tested and the viability testing of seed shall be done in accordance with State law(s) and within six (6) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed mixture container shall be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area. (Smaller/heavier seeds have a tendency to drop to the bottom of the drill and are planted first. The holder shall take appropriate measures to ensure this does not occur.) Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre noted below are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of the second growing season after seeding. The authorized officer is to be notified a minimum of seven (7) days prior to seeding of the project.

13. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of six (6) inches deep, the soil shall be deemed too wet to adequately support construction equipment.
14. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder(s) shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way/permit or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b.

A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

15. The Holder shall retain a contractor for third party compliance. The compliance contractor shall be separate, independent from, and not subcontracted by anyone preparing the engineering plans, design, construction or operation of the holder's project.

All costs incurred by the compliance contractor in connection with this project shall be the sole responsibility of the holder, and the holder agrees to hold harmless and indemnify BLM with respect to any and all claims, demands, cause(s) or action and the like which may arise from the performance of the compliance contractor or any services utilized in the compliance of the project.

16. Ninety (90) days prior to termination of the right-of-way/permit, the holder shall contact the authorized officer to arrange a joint inspection of the right-of-way/permit. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, or surface material, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the holder's commencement of any termination activities.

FORM 2800-14  
(August 1985)

Issuing Office  
Moab District  
Price Field Office

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
RIGHT-OF-WAY  
SERIAL NUMBER UTU-77122

- 
1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761).
  2. Nature of Interest:
    - a. By this instrument, the holder:

Utah American Energy Inc  
P. O. Box 986  
Price, Utah 84501

receives a right to construct, operate, maintain and terminate a mine facility right-of-way on public lands described as follows:

Salt Lake Meridian, Utah,

T.16 S., R.14 E.,  
Section 15, NW4SE4, S2SE4, E2SW4.
    - b. The right-of-way granted herein is for mine site facilities and encompasses 40.0 acres, more or less within the described subdivisions.
    - c. This instrument shall terminate thirty (30) years from its effective date unless, prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.
    - d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

- e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration or prior termination of the grant.

3. Rental:

For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer, unless specifically exempted from such payment by regulation. Provided, however, the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

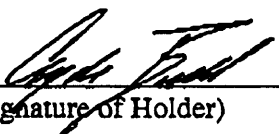
4. Terms and Conditions:

- a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations, part 2800.
- b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d), or as directed by the authorized officer.
- c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided, however, a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.
- d. The stipulations, plans, maps, or designs set forth in Exhibit A and Exhibit B, dated July 23, 2001, attached hereto are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety. All commitments referenced in Chapter 2, Alternative B, all mitigation outlined in Chapter IV and all other applicable sections of the environmental assessment for the project entitled *Development of the Lila Canyon Project, Emery County, Utah* (EA NO. UT-070-99-22, July 2000) are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.
- e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.




- f. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.
- g. Ninety (90) days prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a joint inspection of the right-of-way area. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures or surface material, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the holder's commencement of any termination activities.

IN WITNESS WHEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

  
(Signature of Holder)

 (Acting)  
(Signature of Authorized Officer)

  
(Title)

Field Manager  
(Title)

7/25/01  
(Date)

7/27/01  
(Effective Date of Grant)

JUL 28 2001

2890  
UTU-77122  
(UT-070)

## Exhibit A

1. The holder shall operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with its mine permit plan (Utah Division of Oil Gas and Mining No. ACT/007/013). When approved this grant is made part of the permit. Any relocation, additional construction, or use that is not in accord with the approved mine plan shall not be initiated without the prior written approval of the authorized officer. A copy of the complete right-of-way grant, including all stipulations and mine plan, shall be made available on the right-of-way area during construction, operation, and termination to the authorized officer. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment.
2. The holder shall contact the authorized officer at least fourteen (14) days prior to the anticipated start of construction and/or any surface disturbing activities. The authorized officer will require and schedule a preconstruction conference with the holder prior to the holder's commencing construction and/or surface disturbing activities on the right-of-way. The holder and/or his representative shall attend this conference. The holder's contractor, or agents involved with construction and/or any surface disturbing activities associated with the right-of-way, shall also attend this conference to review the stipulations of the grant including the plans(s) of development.
3. The holder shall not initiate any construction or other surface disturbing activities on the right-of-way without the prior written authorization of the authorized officer. Such authorization shall be a written notice to proceed issued by the authorized officer. Any notice to proceed shall authorize construction or use only as therein expressly stated and only for the particular location or use therein described. A notice to proceed shall not be issued until the mine plan is approved by the Office of Surface Mining Reclamation and Enforcement.
4. The authorized officer may suspend or terminate in whole, or in part, any notice to proceed which has been issued when, in his judgement, unforeseen conditions arise which result in the approved terms and conditions being inadequate to protect the public health and safety or to protect the environment.
5. The holder shall designate a representative who shall have the authority to act upon and to implement instructions from the authorized officer. The holder's representative shall be available for communication with the authorized officer within a reasonable time when construction or other surface-disturbing activities are underway.

6. The holder shall conduct all activities associated with the construction, operation and maintenance of the right-of-way within the authorized limits of the right-of-way.
7. The holder shall survey and clearly mark the centerline and or exterior limits of the right-of-way, as determined by the authorized officer.
8. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of six (6) inches deep, the soil shall be deemed to be too wet to adequately support construction equipment.
9. Construction sites shall be maintained in a sanitary condition at all times: waster material at the site shall be disposed of promptly at an appropriate waste disposal facility. "Waste" means all discarded matter including human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.
11. The Holder shall retain a contractor for third party compliance. The compliance contractor shall be separate, independent from, and not subcontracted by anyone preparing the engineering plans, design, construction or operation of the holder's project.

All costs incurred by the compliance contractor in connection with this project shall be the sole responsibility of the holder, and the holder agrees to hold harmless and indemnify BLM with respect to any and all claims, demands, cause(s) or action and the like which may arise from the performance of the compliance contractor or any services utilized in the compliance of the project.
12. Thirty (30) days prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination and rehabilitation plan. This plan shall include, but is not limited to, removal of facilities, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the holder's commencement of any termination activities.

**EXHIBIT "A"**  
**PERMIT AREA**  
**LEGAL DESCRIPTION**

Permit Number ACT/007/013

**EXHIBIT "A"**

**PERMIT AREA**

In accordance with the **RECLAMATION AGREEMENT**, the **PERMITTEE** intends to conduct coal mining and reclamation activities on or within the **PERMIT AREA** as described hereunder: (The bonded area equals the permit area.)

Total acres of **PERMIT AREA**: 6032.07

Legal Description of **PERMIT AREA**:

See attached Table 4-2 and Plate 1-1

This is the **PERMIT AREA** that is covered by the reclamation surety provided in Exhibit "B".

**IN WITNESS WHEREOF** the **SURETY** has hereunto set it's signature and seal this

19th day of July, 2001.

XL Specialty Insurance Company  
**SURETY**

By: Anthony J. Garbarini  
Anthony J. Garbarini  
Title: Attorney-in-fact

CL, C. ...

### Table 4-2

**SUB TOTAL**

Lila Canyon Mine

UtahAmerican Energy, Inc.

Total "A" Horse Canyon	1327.75
Total "B" Lila Canyon	4704.32
GRAND TOTAL	6032.07

Please note

- (1) UEI
- (2) Eardley
- (3) Pepper



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

RECEIVED

JAN 18 2001

DIVISION OF  
OIL, GAS AND MINING

Price Field Office  
125 South 600 West  
Price, Utah 84501  
(435) 636-3600

2800  
UTU-77122  
(UT-070)

Ms. Mary Ann Wright  
Utah Division of Oil Gas and Mining  
P. O. Box 145801  
Salt Lake City, Utah 84114-5801

JAN 5 2001

RE: Lila Canyon MRP (ACT/007/013)

incoming  
cc Mary ANN  
DALE

Copy [signature]

Dear Ms. Wright:

The Bureau of Land Management is prepared to grant the right of entry to UtahAmerica Inc. (UEI) for the surface facilities necessary for the Lila Canyon Mine Project. These facilities would include a site right-of-way to construct, operate and maintain mine related surface facilities on public lands, a road right-of-way to Emery County to construct operate and maintain a coal haul access road and a right-of-way to construct, operate and maintain a 46 kV powerline. However, the case is in litigation and we are waiting for a decision from the Interior Board of Land Appeals whether to grant the appellants a stay. When this issue is resolved we would be in the position to grant right-of-way

It is our understanding that this letter will demonstrate that UEI has the right of entry pending the outcome of the ongoing litigation. If you have any questions, please feel free to contact Mark Mackiewicz of my staff or me at (435) 636-3600.

Sincerely,

*Tom E. Rasmussen*

Tom Rasmussen  
Acting Field Manager

~~Enclosure:~~

cc: Mr. Clyde Borrell





AN XL CAPITAL COMPANY

## UNLIMITED POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the XL SPECIALTY INSURANCE COMPANY, a corporation organized and existing by virtue of the laws of the State of Illinois ("Company" or "Corporation"), does hereby nominate, constitute and appoint: **Anthony J. Garbarini**, its true and lawful Attorney(s)-in-fact to make, execute, attest, seal and deliver for and on its behalf, as surety, and as its act and deed, where required, any and all bonds, undertakings, recognizances and written obligations in the nature thereof, the penal sum of no one of which is in any event to exceed unlimited as required by Surety Obligees.

Such bonds and undertakings, when duly executed by the aforesaid Attorney(s)-in-fact shall be binding upon the said Company as fully and to the same extent as if such bonds and undertakings were signed by the President and Secretary of the Company and sealed with its corporate seal.

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company on the 5th day of December, 1988:

"RESOLVED, That the President, or any Vice President of the Company or any person designated by any one of them is hereby authorized to execute Powers of Attorney qualifying the attorney named in the given Power of Attorney to execute in behalf of the Company, bonds, undertakings and all contracts of suretyship, and that any Secretary or any Assistant Secretary of the Company be, and that each or any of them hereby is authorized to attest the execution of any such Power of Attorney, and to attach thereto the Seal of the Company.

FURTHER RESOLVED, That the signature of such officers and the Seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be thereafter valid and binding upon the Company with respect to any bond, undertaking or contract of suretyship to which it is attached."

Bonds executed under this Power of Attorney may be executed under facsimile signature and seal pursuant to the following Resolution adopted by the Board of Directors of the Company on August 7, 1997.

"RESOLVED, That the signature of Stanley A. Galanski, as President of this Corporation, and the seal of this Corporation may be affixed or printed on any and all bonds, undertakings, recognizances, or other written obligations thereof, on any revocation of any Power of Attorney, or on any certificate relating thereto, by facsimile, and any Power of Attorney, any revocation of any Power of Attorney, bonds, undertakings, recognizances, certificate or other written obligation, bearing such facsimile signature or facsimile seal shall be valid and binding upon the Corporation."

IN WITNESS WHEREOF, the XL SPECIALTY INSURANCE COMPANY has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officers this 3rd day of January, 2000.

XL SPECIALTY INSURANCE COMPANY

BY:

PRESIDENT

Attest:

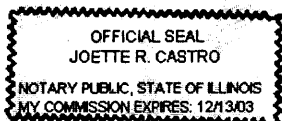
SECRETARY



STATE OF ILLINOIS  
COUNTY OF COOK

ss.

On this 3rd day of January, 2000, before me personally came Stanley A. Galanski to me known, who, being duly sworn, did depose and say: that he is President of the Corporation described in and which executed the above instrument; that he knows the seal of said Corporation; that the seal affixed to the aforesaid instrument is such corporate seal and was affixed thereto by order and authority of the Board of Directors of said Company; and that he executed the said instrument by like order a

  
NOTARY PUBLIC

STATE OF ILLINOIS  
COUNTY OF COOK

ss.

I, Ben M. Llaneta, Secretary of the XL SPECIALTY INSURANCE COMPANY a corporation of the State of Illinois, do hereby certify that the above and foregoing is a full, true and correct copy of Power of Attorney issued by said Company, and that I have compared same with the original and that it is a correct transcript therefrom and of the whole of the original and that the said Power of Attorney is still in full force and effect and has not been revoked.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company, at the City of Schaumburg, this 12<sup>th</sup> day of July, 2001

SECRETARY



**EXHIBIT "B"**

**SURETY BOND  
(FEDERAL COAL)**

**THIS SURETY BOND entered into and by and between the undersigned PERMITTEE, and SURETY company, hereby jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns unto the State of Utah, Division of Oil, Gas and Mining (DIVISION), and the U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement (OSM) in the penal sum of \$ 1,556,000. (Surety Bond Amount) for the timely performance of reclamation responsibilities of the permit area described in Exhibit "A" of this Reclamation Agreement.**

**This SURETY BOND will remain in effect until all of the PERMITTEE's reclamation obligation have been met and released by the DIVISION and is conditioned upon faithful performance of all of the requirements of the Act, the applicable rules and regulations, SMCRA, the approved permit and the DIVISION.**

**The SURETY will not cancel this bond at any time for any reason, including non-payment of premium or bankruptcy of the Principal during the period of liability.**

**The SURETY and their successors and assigns, agree to guarantee the obligation and to indemnify, defend, and hold harmless the DIVISION and OSM from any and all expenses which the DIVISION and OSM may sustain as a result of the PERMITTEE's failure to comply with the condition(s) of the reclamation obligation.**

**The SURETY will give prompt notice to the PERMITTEE and to the DIVISION and OSM of any notice or action involving insolvency or bankruptcy of the SURETY, or alleging any violations of regulatory requirements which could result in suspension or revocation of the SURETY's license in this state. In the event the Cooperative Agreement between the DIVISION and OSM is terminated, then the portion of the bond covering the Federal Lands will be payable only to the United States, Department of Interior, Office of Surface Mining.**

**Terms for release or adjustment of this BOND are as written and agreed to by the DIVISION and the PERMITTEE in the RECLAMATION AGREEMENT incorporated by reference herein, to which this SURETY AGREEMENT has been attached as Exhibit "B".**

IN WITNESS WHEREOF, the PERMITTEE has hereunto set its signature and seal  
this 13 day of July, ~~19~~ 2001

Utah American Energy, Inc.

PERMITTEE

By: [Signature]

Title: President

IN WITNESS WHEREOF, the SURETY has hereto set its signature and seal  
this 5th day of July, ~~19~~ 2001

XL Specialty Insurance Company

SURETY

By: [Signature]

Title: Susan C. Bliss, Attorney-in-Fact

ACCEPTED BY THE STATE OF UTAH  
this 27 day of July, 19 2001

[Signature]

Lowell P. Braxton, Director

Division of Oil, Gas and Mining

**NOTE:**

An Affidavit of Qualification must be completed and attached to this form for each authorized agent or officer. Where one signs by virtue of Power of Attorney for a company, such Power of Attorney must be filed with this Agreement. If the PERMITTEE is a corporation, the Agreement shall be executed by its duly authorized officer.

**AFFIDAVITS  
OF  
QUALIFICATION**

AFFIDAVIT OF QUALIFICATION  
SURETY COMPANY

—ooOOoo—

I, Susan C Bliss, being first duly sworn under oath, deposes and says that he/she is the (officer or agent) Attorney in Fact of XL Specialty Insurance Company and that he/she is duly authorized to execute and deliver the foregoing obligations; and that said SURETY COMPANY is authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations herein.

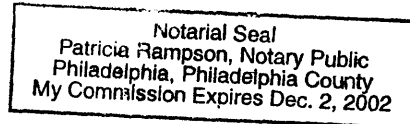
(Signed) Susan C Bliss, Attorney in Fact  
Surety Company Officer - Position

Subscribed and sworn to before me this 5<sup>th</sup> day of July, 19 2001

Patricia Rampson  
Notary Public

My Commission Expires:

December 02, 2002



Attest:

STATE OF Pennsylvania )  
COUNTY OF Philadelphia ) ss:

**AFFIDAVIT OF QUALIFICATION**  
**DIRECTOR**  
--ooOOoo--

Lowell Braxton, being first duly sworn under oath, deposes and says that he is the Director for the Division of Oil, Gas and Mining, Department of Natural Resources, State of Utah; and that he is duly authorized to execute and deliver the foregoing obligations; and that said Director is authorized to execute the same by authority of laws on behalf of the State of Utah.

(Signed) Lowell P Braxton  
Lowell Braxton, Director  
Division of Oil, Gas and Mining

Subscribed and sworn to before me this 27<sup>th</sup> day of July, 2001.

Joelle Burns  
Notary Public

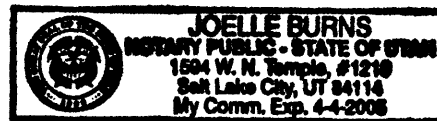
My Commission Expires:

April 4, 2005.

Attest:

STATE OF Utah )

COUNTY OF Salt Lake ) SS:



**UNLIMITED POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS: That the XL SPECIALTY INSURANCE COMPANY, a corporation organized and existing by virtue of the laws of the State of Illinois ("Company" or "Corporation"), does hereby nominate, constitute and appoint; *David M. Finkelstein, Julie K. Faber, Susan C. Bliss, Doris L. Smith, Susan C. Weckerly, Yvonne T. Henson, John E. Baldino, Thomas A. Littlefield*, its true and lawful Attorney(s)-in-fact to make, execute, attest, seal and deliver for and on its behalf, as surety, and as its act and deed, where required, any and all bonds, undertakings, recognizances and written obligations in the nature thereof, the penal sum of no one of which is in any event to exceed \$Unlimited .

Such bonds and undertakings, when duly executed by the aforesaid Attorney(s)-in-fact shall be binding upon the said Company as fully and to the same extent as if such bonds and undertakings were signed by the President and Secretary of the Company and sealed with it's corporate seal.

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company on the 5<sup>th</sup> day of December, 1988:

"RESOLVED, That the President, or any Vice President of the Company or any person designed by any one of them is hereby authorized to execute Powers of Attorney qualifying the attorney named in the given Power of Attorney to execute in behalf of the Company, bonds undertakings and all contacts of suretyship, and that any Secretary or any Assistant Secretary of the Company be, and that each or any of them hereby is authorized to attest the execution of any such Power of Attorney, and to attach thereto the Seal of the Company.

FURTHER RESOLVED, That the signature of such officers and the Seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be thereafter valid and binding upon the Company with respect to any bond, undertaking or contract of suretyship to which it is attached."

Bonds executed under this Power of Attorney may be executed under facsimile signature and seal pursuant to the following Resolution adopted by the Board of Directors of the Company on August 7, 1997.

"RESOLVED, That the signature of Stanley A. Galanski, as President of this Corporation, and the seal of this Corporation may be affixed or printed on any and all bonds, undertakings, recognizances, or other written obligations thereof, on any revocation of any Power of Attorney, or on any certificate relating thereto, by facsimile, and any Power of Attorney, any revocation of any Power of Attorney, bonds, undertakings, recognizances, certificate or other written obligation, bearing such facsimile signature or facsimile seal shall be valid and binding upon the Corporation."

IN WITNESS WHEREOF, the XL SPECIALTY INSURANCE COMPANY has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officers this February 16th, 2001.

XL SPECIALTY INSURANCE COMPANY

BY:

*Stanley A. Galanski*

PRESIDENT

*Ben M. Llaneta*

SECRETARY

Attest:



STATE OF ILLINOIS  
COUNTY OF COOK

On this 16th day of February, 2001, before me personally came Stanley A. Galanski to me known, who, being duly sworn, did depose and say: that he is President of the Corporation described in and which executed the above instrument; that he knows the seal of said Corporation; that the seal affixed to the aforesaid instrument is such corporate seal and was affixed thereto by order and authority of the Board of Directors of said Company; and that he executed the said instrument by like order a



STATE OF ILLINOIS  
COUNTY OF COOK

I, Ben M. Llaneta, Secretary of the XL SPECIALTY INSURANCE COMPANY a corporation of the State of Illinois, do hereby certify that the above and forgoing is a full, true and correct copy of Power of Attorney issued by said Company, and that I have compared same with the original and that it is a correct transcript therefrom and of the whole of the original and that the said Power of Attorney is still in full force and effect and has not been revoked.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company, at the City of Schaumburg, this 5 day of July

20 01

SECRETARY

*Ben M. Llaneta*



1. Power of Attorney may not be used to execute any bond with an inception date after February 16, 2005

This document is printed on a brown background

**AFFIDAVIT OF QUALIFICATION  
PERMITTEE  
--ooOOoo--**

I, Clyde Borrell, being first duly sworn under oath, deposes and says that he/she is the (officer or agent) President of UtahAmerican Energy, Inc.; and that he/she is duly authorized to execute and deliver the foregoing obligations; and that said PERMITTEE is authorized to execute the same and has complied in all respects with the laws of Utah in reference to commitments, undertakings and obligations herein.

(Signed) \_\_\_\_\_

Clyde Borrell  
Name - Position

Subscribed and sworn to before me this 19<sup>th</sup> day of July, 2001.

Denise Jackson  
Notary Public

My Commission Expires:

**DENISE R. JACKSON**

Notary Public State of Ohio

~~My Commission Expires 9-27-2005~~

Attest:

STATE OF OHIO )

COUNTY OF BELMONT )

) ss:



**EXHIBIT "B"**

**SURETY BOND  
(FEDERAL COAL)**

THIS SURETY BOND entered into and by and between the undersigned PERMITTEE, and SURETY company, hereby jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns unto the State of Utah, Division of Oil, Gas and Mining (DIVISION), and the U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement (OSM) in the penal sum of \$1,137,726.00(Surety Bond Amount) for the timely performance of reclamation responsibilities of the permit area described in Exhibit "A" of this Reclamation Agreement.

This SURETY BOND will remain in effect until all of the PERMITTEE's reclamation obligation have been met and released by the DIVISION and is conditioned upon faithful performance of all of the requirements of the Act, the applicable rules and regulations, SMCRA, the approved permit and the DIVISION.

The SURETY will not cancel this bond at any time for any reason, including non-payment of premium or bankruptcy of the Principal during the period of liability.

The SURETY and their successors and assigns, agree to guarantee the obligation and to indemnify, defend, and hold harmless the DIVISION and OSM from any and all expenses which the DIVISION and OSM may sustain as a result of the PERMITTEE's failure to comply with the condition(s) of the reclamation obligation.

The SURETY will give prompt notice to the PERMITTEE and to the DIVISION and OSM of any notice or action involving insolvency or bankruptcy of the SURETY, or alleging any violations of regulatory requirements which could result in suspension or revocation of the SURETY's license in this state. In the event the Cooperative Agreement between the DIVISION and OSM is terminated, then the portion of the bond covering the Federal Lands will be payable only to the United States, Department of Interior, Office of Surface Mining.

Terms for release or adjustment of this BOND are as written and agreed to by the DIVISION and the PERMITTEE in the RECLAMATION AGREEMENT incorporated by reference herein, to which this SURETY AGREEMENT has been attached as Exhibit "B".

IN WITNESS WHEREOF, the PERMITTEE has hereunto set its signature and seal  
this 18 day of September, 19 98.

UtahAmerican Energy, Inc.

PERMITTEE

By: [Signature]

Title: President

IN WITNESS WHEREOF, the SURETY has hereto set its signature and seal  
this 15th day of September, 19 98.

Lincoln General Insurance Company

SURETY

By: [Signature]

Title: Michelle Filler, Attorney-in-Fact

ACCEPTED BY THE STATE OF UTAH  
this 14th day of December, 19 98.

[Signature]

Lowell P. Braxton, ~~Acting~~ Director  
Division of Oil, Gas and Mining

**NOTE:** An Affidavit of Qualification must be completed and attached to this form for each authorized agent or officer. Where one signs by virtue of Power of Attorney for a company, such Power of Attorney must be filed with this Agreement. If the PERMITTEE is a corporation, the Agreement shall be executed by its duly authorized officer.

**AFFIDAVITS  
OF  
QUALIFICATION**

**Lincoln General**  
Insurance Company



Phone 717-757-0000

FAX # 717-751-0165

3350 Whiteford Rd., York, PA 17402-9032

## INCREASE RIDER

To be attached to Bond Number SUR004892, issued by **LINCOLN**

**GENERAL INSURANCE COMPANY (as Surety)** for UtahAmerican Energy, Inc.

State of Utah, Division of Oil, Gas and Mining (Division) and the

U. S. Department of Interior, Office of Surface Mining Reclamation & Enforcement (as Obligee) in the amount of One Million One Hundred Thirt

Seven Thousand Seven Hundred Twenty Six and 00/100 DOLLARS (\$1,137,726.00), effective

the 15th day of September, 19 98.

In consideration of the premium charged for the attached bond, it is mutually understood and agreed by the Named Insured and the Surety that, the bond amount is hereby increased from the above to: One Million Two Hundred Fifty Three Thousand and 00/100----- DOLLARS (\$ 1,253,000.00-----).

All other items, limitations and conditions of said bond except as herein expressly modified shall remain unchanged.

This rider shall be effective as of the 24th day of January, ~~19~~ 2001

Principal: UtahAmerican Energy, Inc.

Address: Box 187, St. Clairsville, OH 43950

Signature: [Signature]

**LINCOLN GENERAL INSURANCE COMPANY**  
3350 Whiteford Road  
York, Pennsylvania 17402

Attorney-In-Fact: [Signature]  
Karen Williams

## POWER OF ATTORNEY

NOW ALL MEN BY THESE PRESENTS: That Lincoln General Insurance Company, organized and existing by virtue of the Laws of the Commonwealth of Pennsylvania does hereby nominate, constitute and appoint:

Roger Reschini, Daniel Jack, Colleen M. Mazey and Karen Williams  
of Indiana, in the State of Pennsylvania,

its true and lawful attorney(s)-in-fact to make, execute, attest, seal and deliver for and on its behalf, as surety, and as its act and deed, where required, any and all bonds, undertakings, recognizances and written obligations in the nature thereof

Such bonds and undertakings, when duly executed by the aforesaid Attorney(s)-in-fact shall be binding upon the said Company as fully and to the same extent as if such bonds and undertakings were signed by the President and Secretary of the Company and sealed with its corporate seal. This Power of Attorney is granted and is signed by the authority of the following Resolution adopted by the Board of Directors of the Company on the 6th day of February, 1991.

"Resolution that the President, or any Vice President, in conjunction with any Secretary or Assistant Secretary, be and they are hereby authorized and empowered to appoint Attorneys-in-Fact of the Company in its name and as its acts to execute and acknowledge for and on its behalf as Surety any and all Bonds, recognizances, contract of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by any of said Attorney-in-fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons."

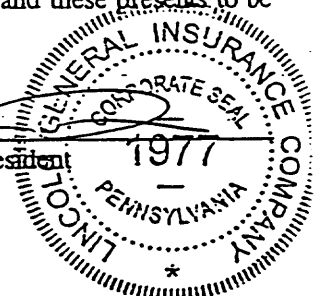
IN WITNESS WHEREOF, Lincoln General Insurance Company has caused its corporate seal to be affixed, and these presents to be signed by its duly authorized officers this 20th day of May, 1999.

est:

Gary Cindorff, Secretary

By:

William G. Star, President



The Commonwealth of Pennsylvania  
York County

On this 20th day of May, 1999, before me personally came William G. Star to me known, who being duly sworn, did depose and say: that he is President of the Corporation described in and which executed the above instrument: that he knows the seal affixed to the aforesaid instrument is such corporate seal and was affixed thereto by order and authority of the Board of Directors of said Company; and that he executed the said instrument by like order and authority and the same was his free act and deed.

The Commonwealth of Pennsylvania  
York County

Kristie L. Coulson, Notary Public  
Springettsbury Twp., York County  
My Commission Expires Apr. 7, 2003

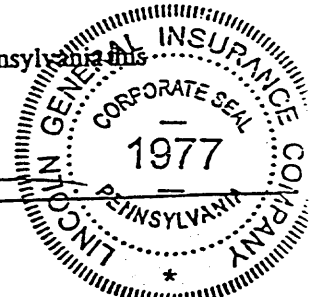
Member, Pennsylvania Association of Notaries

Notary Public

I, Gary Cindorff, Secretary of Lincoln General Insurance Company, a corporation of the Commonwealth of Pennsylvania do hereby certify that the above and foregoing is a full, true and correct copy of Power of Attorney issued by said Company, and of the whole of the original and that the said Power of Attorney is still in full force and effect and has not been revoked, and furthermore that the Resolution of the Board of Directors, set forth in the said Power of Attorney is now in force.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company, at Indiana, Pennsylvania this  
24th day of January, 2001.

Gary Cindorff, Secretary



**EXHIBIT "D"**  
**STIPULATION TO REVISE**  
**RECLAMATION AGREEMENT**

Permit Number: ACT/007/013  
Effective Date: \_\_\_\_\_

**COAL**  
**STIPULATION TO REVISE RECLAMATION AGREEMENT**  
--ooOOoo--

This STIPULATION TO REVISE RECLAMATION AGREEMENT entered into by and between the PERMITTEE and DIVISION incorporates the following revisions or changes to the RECLAMATION AGREEMENT: (Identify and Describe Revisions Below)

In accordance with this STIPULATION TO REVISE RECLAMATION AGREEMENT, the following Exhibits have been replaced by the PERMITTEE and are approved by the DIVISION:

\_\_\_\_ Replace the RECLAMATION AGREEMENT in its entirety.

X Replace Exhibit "A" - PERMIT AREA.

X Replace Exhibit "B" - BONDING AGREEMENT.

\_\_\_\_ Replace Exhibit "C" - LIABILITY INSURANCE.

The BONDING amount is revised from (\$ 1,253,000 ) to (\$ 2,809,000

).

The BONDING Type is changed from \_\_\_\_\_ to \_\_\_\_\_.

The EXPIRATION DATE is revised from \_\_\_\_\_ to \_\_\_\_\_.

The LIABILITY INSURANCE carrier is changed from \_\_\_\_\_

to \_\_\_\_\_.

The AMOUNT of INSURANCE coverage for bodily injury and property damage is changed from (\$ \_\_\_\_\_ ) to (\$ \_\_\_\_\_ ).

IN WITNESS WHEREOF the PERMITTEE has hereunto set its signature and seal  
this 19<sup>th</sup> day of July, 2001.

UTAH AMERICAN ENERGY, INC.

By: [Signature]

Title: President

ACCEPTED BY THE STATE OF UTAH  
this 27 day of July, 2001.

[Signature]  
Director, Division of Oil, Gas and Mining

**NOTE:**

An Affidavit of Qualification must be completed and attached to this form for each authorized agent or officer. Where one signs by virtue of Power of Attorney for a company, such Power of Attorney must be filed with this Agreement. If the PERMITTEE is a corporation, the Agreement shall be executed by its duly authorized officer.



**LILA CANYON PROJECT**  
**EMERY COUNTY, UTAH**

**ENVIRONMENTAL ASSESSMENT**  
**UT-070-99-22**

**PREPARED BY**

**USDI, Bureau of Land Management**  
**Price Field Office**  
**125 South 600 West**  
**Price, Utah 84501**  
**(435) 636-3600**

**COOPERATING AGENCY**

**USDI, Office of Surface Mining**  
**1999 Broadway, Suite 3320**  
**Denver, Colorado 80202**  
**(303) 844-1489**

**JULY 2000**

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# ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AUM	animal unit month
BLM	Bureau of Land Management
BP	Before Present
cfs	cubic feet per second
CFR	Code of Federal Regulations
CR	County Road (Emery)
fps	Feet per Second
FLPMA	Federal Land Policy Management Act
gpm	Gallons per Minute
hp	Horsepower
IMP	Interim Management Plan (BLM)
IPA	Intermountain Power Agency
KOP	Key Observation Point
kV	kilovolt
MFP	Management Framework Plan (BLM)
MLA	Mineral Leasing Act of 1920
MRP	Mine Reclamation Plan
NAS	National Academy of Science
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1986
NRHP	National Register of Historic Places
NRCS	Natural Resource Conservation Service
OSM	Office of Surface Mining
PAP	Permit Application Package (UDOGM)
psf	Pounds per Square Foot
R	Range
ROW	right-of-way
SLB&M	Salt Lake Base and Meridian
SMRCA	Surface Mining Control and Reclamation Act of 1977, as amended
SPCC	Spill Prevention Control and Countermeasure Plan
T	Township
TDS	Total Dissolved Solids
TES	Threatened, Endangered and Sensitive (Species)
TSS	Total Suspended Solids
UDOT	Utah Department of Transportation
UDWR	Utah Division of Wildlife Resources
UDOGM	Utah Division of Oil, Gas and Mining
UEI	UtahAmerican Energy, Incorporated

UNPDES	Utah Nonpoint Discharge Effluent Source
UP&L	Utah Power & Light
U.S.	United States
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WSA	Wilderness Study Area



## GLOSSARY OF TERMS

Access	Passage to proposed site
Affected Environment	The biotic, abiotic, and human-related environment that is sensitive to changes due to the actions propose in any of the alternatives.
Agency	The land management agency, in this case the BLM and OSM.
Allotment	A unit of land suitable and available for livestock grazing that is managed as one grazing unit.
Alternative	Other reasonable courses of action to any proposal which involves unresolved conflicts, concerns or alternate uses of available resources.
Animal Unit Month	For the BLM allotments, it is the forage consumed by a 1,000 pound cow over a one month period, approximately 800 pounds of forage. An animal unit month is then multiplied by 1.32 for a cow/calf operation and is equivalent to an animal month for purposes of this document.
Assessment	An evaluation of existing resources and potential impacts to them from a proposed act or change to the environment.
Background	The viewing area of a distance zone that lies beyond the foreground -middleground. Usually from a minimum of 3 to 5 miles to a maximum of about 15 miles from a travel route, use area, or other observer position. Atmospheric conditions in some areas may limit the maximum to about 8 miles or increase it beyond 15 miles.
Community	A group of one or more populations of organisms that form a distinct ecological unit. Such a unit may be defined in terms of plants, animals or both.
Contrast	The effect of a striking difference in the form, line, color, or texture of the landscape features within the area being viewed.
Cultural Resources	The archeological and historical remains of human occupation or use. Includes any manufactured objects, such as tools or buildings. May also include objects, sites, or geological/geographical locations significant to Native Americans

Cumulative Effects	As defined in 40 CFR 1508.7, cumulative effects are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.
Direct Impacts	As defined within 40 CFR 1508.9, these are the effects which are caused by the action and occur at the same time and place as the action. Synonymous with direct effects.
Endangered species	Any species in danger of extinction throughout all or a significant portion of its range as identified by the Endangered Species Act of 1973 (ESA) . This definition excludes species of insects that the Secretary of Interior determines to be pests and whose protection under the ESA would present an overwhelming and overriding risk to man.
Environment	The surrounding conditions, influences, or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.
Environmental Assessment	A concise public document which serves to a) Briefly provide sufficient evidence and analysis for determining whether to prepare and EIS or a Finding of No Significant Impact, b) Aid an agency's compliance with NEPA when no EIS is necessary, c) Facilitate preparation of an EIS when necessary.
Ephemeral	Flowing in response only to direct precipitation, and whose channel is at all times above the water table, and restricted to streams that do not flow continuously for at least 30 days.
Erosion	The group of processes whereby earth or rock material is loosened or dissolved and removed from any part of the earth's surface.
Habitat	A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover and living space.

Indirect Impact	As defined within 40 CFR 1508.8, these are the effects which are caused by the action but occur later in time or are removed in distance from the action, but are still reasonably foreseeable. Synonymous with indirect effects.
Key Observation Point	Critical viewpoints that are usually along commonly traveled routes or at likely observation points.
Landscape	That which makes up the various attributes of land surface as a result of geologic activity and weathering, such as plateaus, mountains, plains and valleys. In addition to both biotic features such as vegetation, forest, etc., as well as man-made features-such as: urban landscape.
Mitigation	Mitigation includes a) Avoiding the impact altogether by not taking certain action or parts of actions, b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment, d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, e) Compensating for the impact by replacing or providing substantial resources or environments.
Public Lands	Federally owned lands administered by the Bureau of Land Management.
Raptor	A bird of prey.
Right-of-Way	Public lands authorized to be used or occupied pursuant to a right-of-way grant.
Riparian	Any area of land directly influenced by permanent water that has visible vegetation or physical characteristics reflective of permanent water influence. This can include streams, springs, seeps, wet meadows, aspen stands, and similar habitats.
Scoping	Procedures by which agencies determine the extent of analysis necessary for a proposed action, (i.e., the range of actions, alternatives, and impacts to be addressed; identification of significant issues related to a proposed action; and the depth of environmental analysis, data and task assignments needed).

Species	A group of individuals of common ancestry that closely resemble each other structurally and physiological and in nature interbreed producing fertile offspring.
Threatened species	Any species likely to become endangered within the foreseeable future throughout all or a significant part of its range.
Visual Resources	Classification of landscape based on scenic quality, sensitivity to change, and distance from the observer. Determines the amount of visible change to a characteristic landscape that is acceptable.

## CHAPTER 1.0 PURPOSE AND NEED FOR THE ACTION

### 1.1 Purpose and Need for the Action

The underlying need for the proposed action is to access and produce 1.5 million to four million tons of coal per year from 5,605.66 acres of federal and State of Utah leased coal reserves held by UtahAmerican Energy, Incorporated (UEI). These reserves are located in the Book Cliffs coal field in Emery County near East Carbon and Sunnyside, Utah (PLATE I). These reserves include several pre-Federal Land Policy Act of 1976 (FLPMA) federal coal leases under serial numbers SL-066145 (Issued 6/19/46), SL-066490 (Issued 12/31/47), SL-069291 (Issued 4/1/50), and state leases U-0126947 (Issued 12/1/47), U-014217 (Issued 2/1/55), and U-014218 (Issued 2/1/55). These lease areas are shown on PLATE II. The general area along this portion of the Book Cliffs is currently accessed by numerous unmaintained dirt roads and routes. These existing roads and routes are inadequate to facilitate the haulage of approximately 1.5 million to four million tons of coal annually from the proposed mining operation, nor the associated personnel, vendors and supply vehicles a mine of this magnitude would necessitate.

### 1.2 Authorizing Actions and Permits

#### 1.2.1 Conformance with the Bureau of Land Management Land Use Plan

The proposed action is in conformance with the objectives and recommendations of the Bureau of Land Management (BLM) Price River Resource Area Management Framework Plan (MFP), approved in 1983 and as amended. Table 1.1 list the pertinent objectives of the MFP that the proposed action is covered by and in conformance with.

**TABLE 1.1**  
**PROPOSED ACTION CONFORMANCE WITH THE OBJECTIVES OF**  
**THE PRICE RIVER MANAGEMENT FRAMEWORK PLAN**

Resource		Objective
Cultural	C-1	Protection and Promotion of Cultural Resource Values
Lands	L-2	Right-of-Ways and Land Use Permits
Minerals	M-1	Development of Leasable Minerals
Range Management	RM-1	Allocation and Production of Grazing Lands
Recreation	R-1	Preservation and Protection of Visual Resources
	R-2	Review and Identification of Wilderness Values

**TABLE 1.1**  
**PROPOSED ACTION CONFORMANCE WITH THE OBJECTIVES OF**  
**THE PRICE RIVER MANAGEMENT FRAMEWORK PLAN (Continued)**

<b>Resource</b>	<b>Objective</b>	
Recreation	R-3	Value of Paleontological Resources - Negative Determination based on lack of suitable geologic layers.
	R-8	Maintenance of Undeveloped Recreation Resources
Watershed	W-2	Protection of Watersheds
	W-3	Protection and Enhancement of Water Quality
Wildlife	WL-1	Management of Mule Deer Habitat
	WL-2	Management of Icelander Antelope Herd
	WL-3	Management of Elk Habitat
	WL-6	Management of Bighorn Sheep Habitat
	WL-8	Management of Raptor Habitat
	WL-9	Management of Non-Game Species Habitat
	WL-10	Special Management of Threatened, Endangered or Sensitive Species

### **1.2.2 Relationship to Other Statutes, Plans and Required Permits**

The area of the proposed action is located upon federal lands administered by the BLM, Office of Surface Mining Reclamation and Enforcement (OSM), State of Utah, and private jurisdictions. Various federal, state, local, and private statutes, permits, and easements would be required for actions associated with the proposed development.

The granting of the rights-of-ways (ROW) by the BLM is pursuant to the requirements of Title 5 of the FLPMA, and regulations found within Title 43 of the Code of Federal Regulations (CFR), part 2800. These requirements would cover all actions proposed that are off the coal lease area.

The coal lease would be administered under the requirements of the Mineral Lease Act of 1920 (MLA), and regulations found within Title 30 of the CFR (U.S.C. 181-287). The proposed operation and mining activities would be administered by OSM under Chapter 7 of Title 30 of the CFR (700-895) and by the Utah Division of Oil, Gas and Mining (UDOGM) under State of Utah the R645 administrative rules for coal mining (100-402). The Surface Mining Control and Reclamation Act of 1977, as amended (SMCRA) gives OSM primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations in the United States. Pursuant to Section 503 of SMCRA, UDOGM developed and Secretary of the Interior approved, Utah's permanent regulatory program authorizing UDOGM to regulate surface coal mining operations and surface effects of underground coal mining on private

and State lands within Utah. In March 1987, pursuant to Section 523(c) of SMCRA, UDOGM entered into a cooperative agreement with the Secretary of the Interior authorizing them to regulate surface coal mining operations and the surface effects of underground coal mining on federal lands within the state.

Pursuant to the cooperative agreement, federal coal lease holders in Utah must submit a permit application package (PAP) to OSM and UDOGM for proposed mining and reclamation operations on federal lands in the state. UDOGM reviews the PAP to ensure that it complies with the approved state permanent program and other statutes. If it does comply, UDOGM issues the applicant a permit to conduct coal mining operations. OSM and other federal agencies review the PAP to ensure that it contains the necessary information for compliance with the coal lease, MLA, NEPA, and other applicable federal laws and attendant regulations. OSM recommends to the Assistant Secretary of the Interior, Land and Minerals Management the (1) approval of the MLA mining plan, (2) approval of the MLA mining plan with conditions, or (3) disapproval of the MLA mining plan. Before making a recommendation on the mining plan, OSM may obtain input from certain other federal agencies, including the surface management agency (BLM).

UDOGM would enforce the performance standards and permit requirements during the mine's operation and have primary authority in environmental emergencies. OSM retains oversight responsibility of this enforcement. BLM would have authority in emergency situations in which UDOGM or OSM inspectors cannot act before environmental harm or damage would occur.

The area of the proposed action is zoned as MG-1, mining and grazing, by the Emery County Zoning and Planning Office, and is consistent with the existing land use plan for the county.

TABLE 1.2 is a summary of the permits and approvals from federal, state and local agencies that UEI would need to obtain for the project.

### **1.3 Project Initiation, Public Participation, and Issues Identified for Analysis**

Project initiation was started with a request for a ROW with the BLM Price Field Office in February 1998. Agency scoping was initiated in September of 1998. A request for public comments in the scoping process was initiated on March 2, 1999. A news article requesting public comment and input was printed in March 4, 11, 18 and 25 issues of the *Sun Advocate*.

Six parties, organizations or agencies responded to the public scoping process with comments, questions or issues regarding the proposed action. Three responses were received concerning the project as of April 6, 1999. APPENDIX A contains a summary table of the comments received throughout the public participation and formal scoping process. Comments are grouped by organizations and by resource issues. The scoping response number appears followed by a narrative summary.

### 1.3.1 Issues To Be Analyzed

Based on public input and agency recommendations, the following issues were determined to be relevant:

- Surface Subsidence
- Soils, Slope Stability and Rehabilitation Potential
- Ground Water and Surface water
- Livestock Grazing
- Vehicular Traffic
- Visual Resources
- Vegetation Potential for Loss in Species Diversity, Cover and Productivity
- Wilderness Values
- Displacement and Direct Disturbance of Wildlife
- Cultural Resources

### 1.3.2 Comment, Concerns and Critical Elements of the Human Environment Not Analyzed in Detail

The following resources have not been identified within the area of the proposed project, and therefore will not be addressed in the discussion of associated on-site resources (Affected Resources).

**Areas of Critical Environmental Concern** - No such areas occur within or would be impacted by the proposed project.

**Environmental Justice** - The proposed action would not have any impact to human health and environmental effect on minority or low-income populations.

**Prime or Unique Farm Lands** - A negative determination by the Natural Resource Conservation Service (NRCS) of the presence of such lands with the proposed project area is included as APPENDIX E.

**Flood plains and Wetlands** - No such areas occur within the proposed project area or along the proposed ROW's.

**Native American Religious Concerns** - The proposed project area does not contain any known sites of Native American Religious concern.

**Threatened and Endangered Species** - According to information within Utah Endangered, Threatened, and Sensitive Plant Field Guide, published by the USFWS Intermountain Region, and correspondence with the USFWS, no endangered or threatened plant or wildlife species are known to occur within the project area. However, several candidate/sensitive species were indicated by



USWFS as potentially occurring within the area. An inventory of the project area was conducted in the spring of 1998. A four hundred foot corridor along the proposed action transportation routes, and similar area surrounding the proposed mine surface facility and power line were surveyed for threatened, endangered and sensitive plants (TES). No candidate or sensitive species were located within the project area. APPENDIX G contains the report on the TES surveys conducted.

**Wild and Scenic Rivers** - The proposed project area does not include, nor would any action associated with it impact any eligible and/or designated waterways.

**TABLE 1.2 PERMITS AND OTHER LEGAL REQUIREMENTS**

<u>Agency</u>	<u>Act or Regulation</u>	<u>Requirement</u>
<b>Federal</b>		
Council for Environmental Quality	National Environmental Policy Act of 1969 (NEPA), as amended (40 CFR 1500) Public Law 91-90, 42 U.S.C. 4321	Environmental Assessment.
Bureau of Land Management	Federal Land Policy Act of 1976 (FLPMA) (43 CFR 2800 & 3100) Public Law 94-579 (10/21/76)	Right-of-Way, Notice to Proceed, Temporary Use Permits, and Consultation.
Office of Surface Mining	Mineral Lease Act of 1920 (Title 30; U.S.C. 181-287) Administrative Regulations 30 CFR (30 CFR 700-895)	Mining plan approval.
Fish and Wildlife Service	Mineral Lease Act of 1920 (Title 30; U.S.C. 181-287) Endangered Species Act of 1973 (ESA) (16 U.S.C. 1539)  Migratory Bird Treaty Act (16 U.S.C. 703-711) Bald Eagle Protection Act (U.S.C. 663a)	Coal lease development and mine operation.  Mining plan document preparation  Provide biological opinion of wildlife and plants that are federally listed, and impacts of the proposed action to listed species.  Consultation and review of impacts to listed species.  Consultation and review of impacts to golden eagles.
<b>State of Utah</b>		
Department of Transportation	Permit to Encroach Road Easement Permit to Cross a Road Easement	Consider issuance of permit to intersect state road ROW. Consider issuance of permit for crossing of road ROW.
Department of Natural Resources Division of Water Rights Division of Oil, Gas and Mining	Permit to Alter a Natural Drainage Channel Alteration Permit GP-40 Permit for Mine and Reclamation (R645-301)	Mine plan approval and operation.
Department of Community & Economic Development Utah State Historical Society	National Historic Preservation Act (CFR 800, Section 106)	Consider NRHP eligibility and mitigation of cultural resources.
Department of Environmental Quality Division of Air Quality Division of Water Quality	Permit to Affect Air Quality Construction and Operational Permits	Notification of Intent UNPDES and Storm Water Discharge Permits.
<b>Emery County</b>	Large site development permits County Zoning Ordinances	Determine compliance with existing land use designation.
<b>Private</b>	Confirmation and Review of ROW Obtain Easements	

## **CHAPTER 2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

### **2.1 Introduction**

This chapter describes the alternatives developed in response to the issues and concerns addressed in CHAPTER 1.0 and as identified within the scoping process.

### **2.2 Alternatives Considered in Detail**

#### **2.2.1 Alternative A - No Action**

Under the No Action alternative, the ROW would not be issued and mine plan proposed would not be developed.

#### **2.2.2 Alternative B - Proposed Action**

The proposed action would be located in Emery County, approximately 6.68 miles north-northwest of U.S. Highway 191/6 (See PLATE I). The project would be implemented in two phases:

**Phase I** - This phase involves the construction and operation of the Lila Canyon Mine for conventional room and pillar mining, as well as the construction and operation of its associated surface facilities, utilities and transportation routes. Based on current conditions, exploratory drilling would not be expected to be required for the development of the coal lease. To facilitate the development and operation of the proposed mine, the existing Lila Canyon Road that ties into Emery County Road (CR) 125 at the existing Horse Canyon Mine Site would be upgraded to facilitate personnel and construction equipment travel. Concurrent with upgrading the existing access road, a separate operational coal haul road would also be constructed. An acceleration and deceleration intersection would be constructed at the junction of U.S. Highway 191/6 in the SE 1/4 SW 1/4 of Section 9, T. 17 S., R. 14 E.. The proposed road would proceed northwest 6.8 miles, terminating at the proposed Lila Canyon Mine surface facility. A ROW for an underground telephone line/utility corridor would be established within the proposed road ROW. The phone line would be adjacent to the paved surface and would follow the road to the mine site. A 46 kV power line that ties to the existing Moab/Price/Green River line approximately one mile south of the proposed mine facilities would be constructed to provide the necessary power requirements.

**Phase II** - This phase would be based on an anticipated projected increase in coal production over the next five years. The mine would move from conventional room and pillar to long wall mining, and the coal haul road would be paved to accommodate up to four million tons of coal haulage annually. For sake of discussion, activities as currently proposed for Phase II are presented.

However, the implementation of this phase would be dependent on coal sales and market conditions. As previously indicated in Phase I, exploratory drilling would likewise not be required for the anticipated actions of Phase II.

**Description of Physical Facilities of the Proposed Action - Phase I** The proposed action to be taken by UEI on public, state, and private land for the development and operation of Phase I includes:

- Upgrade of the existing Lila Canyon Road.
- Proposed coal haul road development.
- Development of the 46 kV power line to the proposed mine surface facility.
- Development of the Lila Canyon Mine surface facility.
- Conventional mining of existing coal reserves.
- Wildlife enhancement projects

The planned surface routes of the existing and proposed roads and power line, as well as the area of the proposed mine surface facility and lease area are shown on PLATE II. Details of the proposed surface facilities associated with mine are shown on PLATE II-A. The following section describes each of the attributes of the proposed action.

**Upgrade of the Existing Lila Canyon Road** - The existing Lila Canyon Road was constructed in the early 1940's with the intent of developing the Horse Canyon Mine South Lease area. Over the last 50 years, the road has received little if any maintenance, but has remained accessible by four wheel drive vehicles. The road, with an average width of 50 feet, was constructed to a standard that would accommodate coal haulage with an average grade that does not exceed four percent. Culverts were installed at all drainage crossings, and with associated barrow ditches. Currently this road is controlled by Intermountain Power Agency (IPA) with easements in place for future development and use by UEI.

UEI would upgrade 2.8 miles of the Lila Canyon Road in cooperation with IPA and Emery County. The majority of the road, within a deeded 50 foot ROW, crosses private land owned by UEI (16.28 acres). Approximately 600 feet (0.69 acres) would be on public land near the tie-in with the proposed mine surface facility. No additional disturbance is proposed outside of the existing ROW. The proposed upgrade would establish a 30 foot unpaved two lane road, designed for a maximum speed of 35 miles per hour. All culverts would be replaced, the surface regraded, and approximately 27,400 cubic yards of granular road base hauled and placed onto the road surface. All road base material would be purchased from an existing commercial supplier and transported to the site over the current Emery County Road system. Borrow ditches would be reestablished and the road would be posted with the necessary speed and caution signs to ensure vehicular safety.

Construction crews associated with the development of the proposed action would travel to and from the work site via U.S. Highway 191/6 and CR 125. During construction of the proposed road approximately 30 people would be employed. The existing Horse Canyon Road (CR 125) would

be used to gain access to the existing Lila Canyon Road. No modifications nor upgrade to this road would be required or conducted during the proposed construction related use. A letter from the Emery County Road Department is attached as APPENDIX B, and details the requirements of use in association with this road. Upon completion of the proposed mine surface facility and proposed haul road, the existing Lila Canyon Road would be gated at the intersection with the Horse Canyon Road to prohibit public access on this route into the mine area.

A plan and profile, showing grade, drainage, and culvert placement, as well as a typical cross-section is attached as APPENDIX B.

**Coal Haul Road Development** - A proposed two lane, 30 foot gravel surface Class B road, totaling 4.7 miles, would transect public and state land. The proposed road, designed for a maximum speed of 45 miles per hour, would be constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) and the Utah Department of Transportation 1992 Standard Specifications for Road and Bridge Construction. The total acreage of the proposed 100 foot construction and 70 foot operational ROW for the new coal haul road upon public and state land is shown in TABLE 2.1.

**TABLE 2.1**  
**SUMMARY OF ROW ACREAGE ASSOCIATED WITH THE PROPOSED NEW COAL HAUL ROAD**

<u>Ownership</u>	<u>Miles</u>	<u>Acres-100' ROW (Construction)</u>	<u>Acres 70' ROW (Operational)</u>
BLM	3.54 (18,691.20 feet)	42.90	30.04
State of Utah	1.16 (6,124.80 feet)	14.06	9.84
<b>TOTAL</b>	<b>4.7miles (24,816 feet)</b>	<b>56.96 Acres</b>	<b>39.88 Acres</b>

The area to be disturbed as a result of the construction would vary in width from 50 feet to approximately 100 feet depending on the natural terrain. The desired construction ROW would be 100 feet (56.96 acres) to allow the construction of cut and fill slopes. Upon completion of the road, the temporary construction ROW would be stabilized and reclaimed to BLM and/or state standards, thus minimizing the permanent operational ROW to a width of 70 feet (39.88 acres), or 35 feet on each side of the center line of the travel surface. A three wire strand fence built to BLM range and wildlife standards would be constructed on each immediate side of the proposed operational ROW.

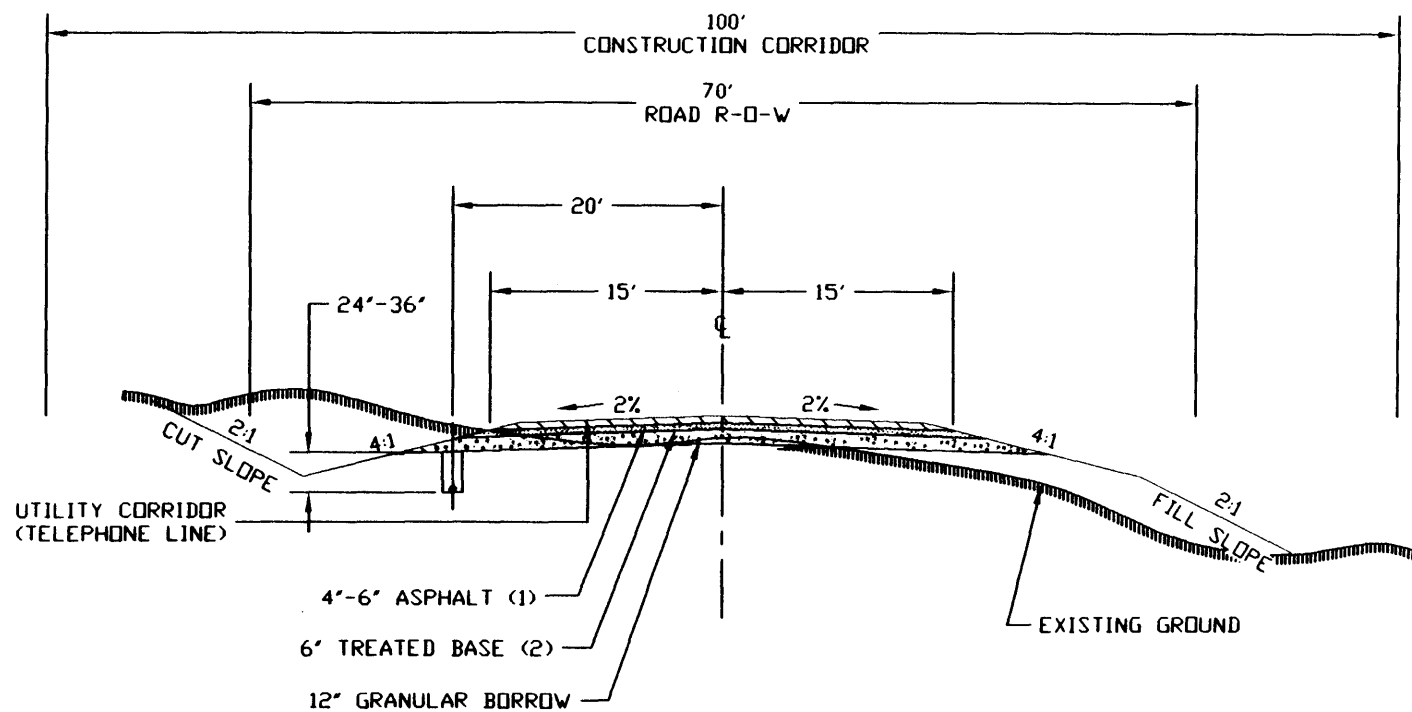
FIGURE 2.1 is a typical cross-section of the proposed coal haul road. Twelve inches of granular borrow would be used for the sub-base. The base course would consist of six inches of enzyme treated mineral aggregate. This well graded gravel would have a maximum size of one inch. The enzyme treatment would help stabilize the road surface and reduce dust emissions. The 30 foot graveled surface would be wide enough for future asphalt paving. Upon completion, an enzyme armor coating would be applied to the proposed road.

Construction of the coal haul road would involve the same access and crew sizes required for the upgrade of the existing Lila Canyon Road. Operational use of the coal haul road would be associated with transport and production of an estimated 2.5 million tons of coal a year during Phase I. This number is based on UEI's proposal in the Resource Recovery and Protection Plan submitted to the BLM in December 1998. Vehicular use would include the personnel associated with the mine, delivery of material to the mine, and the transport of the coal via the proposed road to U.S. Highway 191/6 and the loadout site on the Ridge Road near Wellington. UEI has indicated that at full capacity after five years, as many as 315 coal haul trucks per day and 63 personal and delivery vehicles per day would travel to and from the proposed mine via U.S. Highway 191/6. Coal haul travel would utilize U.S. Highway 191/6 through Wellington, and onto the loadout site on Ridge Road off U.S. Highway 191/6.

In association with the development of the coal haul road, an acceleration and deceleration intersection on U.S. Highway 191/6 would be constructed. This four lane intersection, within the Utah Department of Transportation (UDOT) ROW, would be approximately 2,300 feet in length and allow for heavy truck traffic to leave and enter the highway. The intersection would be constructed concurrent with the construction of the proposed coal haul road, and be completed prior to initial coal haulage. A typical design for the proposed intersection is shown in FIGURE 2.2. APPENDIX C, contains a copy of the UDOT ROW Encroachment Permit filed by UEI for the proposed activity.

In association with the construction areas that would be reclaimed upon completion of the proposed project, an effort would be made to reclaim existing roads and routes on public lands that intersect the proposed road. This would be completed to minimize the potential disturbed area and number of approaches to the proposed coal haul road. As much as four miles of roads and routes could be reclaimed. Roads and routes required to facilitate grazing management (movement and water) and access would be left in place. Where existing areas are eliminated, cuts would be pulled back to the approximate original contour and drainages would be reestablished. Concurrent with recontouring, revegetation using an approved BLM seed mix (TABLE 2.2) would be completed.

**Utility Corridor** - UEI would install, upon completion of the new proposed coal haul road, a telephone line within a corridor adjacent to the road to serve the proposed mine. The line would be buried at a depth of 24 to 36 inches, approximately ten feet from the edge of the surface. A junction box would be installed approximately 3,000 feet from the intersection with U.S. Highway 191/6. At approximately 6,000 foot intervals along the length of the road, similar boxes would be installed. The four by five inch boxes, colored an approved BLM color, would stand approximately 36 inches above the surface. A 10 foot wide (5.7 acre) corridor on the cut, or uphill, side of the road, would be located within the permanent ROW of the proposed road. The utility corridor would be located entirely within the disturbance associated with the new road and could accommodate any future utilities (i.e., gas, water and/or sewer lines) during the life of the mine.



2. ENZYME TREATED BASE COURSE.
1. 6" ASPHALT ON U.S. HIGHWAY 191/6 AND 4" ON COAL HAUL ROAD. ASPHALTING COMPLETE ROAD (4.8 MILES) IN PHASE II.

NOTES: UNLESS OTHERWISE SPECIFIED.

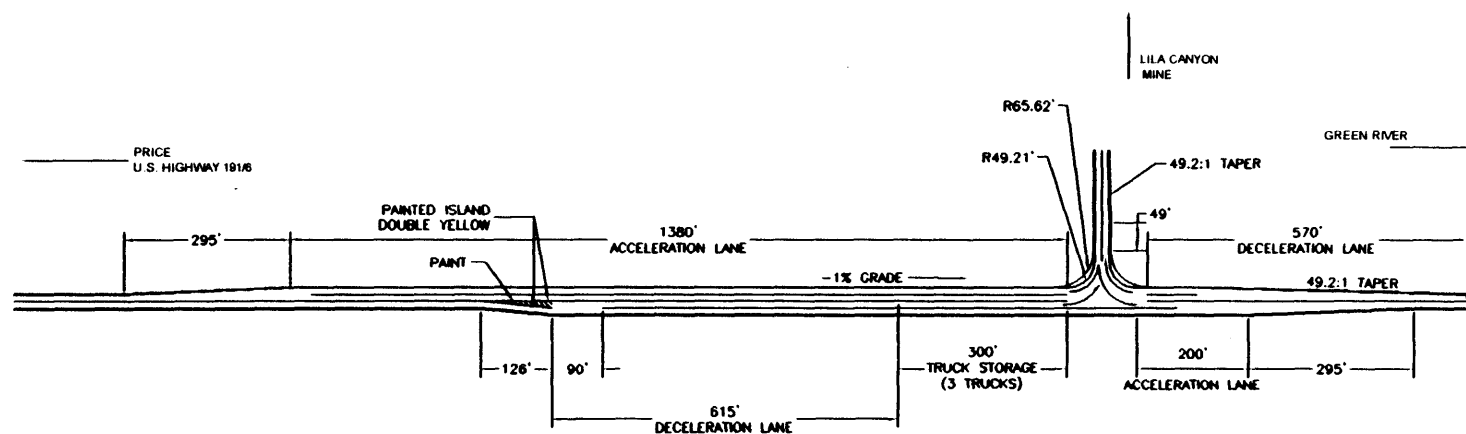
#### PHASE I MATERIAL ESTIMATE

ITEM	IN PLACE QUANTITIES
ASPHALT	1,382 YD <sup>3</sup>
ENZYME TREATED BASE	15,019 YD <sup>3</sup>
UNTREATED BASE	1,007 YD <sup>3</sup>
GRANULAR BORROW	37,775 YD <sup>3</sup>

LILA CANYON

TYPICAL HAUL  
ROAD SECTION

DATE: DECEMBER 1999	REVISION: EIS
SCALE: NONE	FIGURE 2.1



4. COAL HAUL ROAD WOULD BE PAVED FOR 1/4 MILE.
3. ALL LANES TO BE 11.8 FT WIDE.
2. ALL SHOULDERS TO BE 2 FT WIDE.
1. ALL DIMENSIONS SHOWN ARE FEET (FT).

NOTES: UNLESS OTHERWISE SPECIFIED.

DESIGN INFORMATION TAKEN FROM UTAH  
DEPARTMENT OF TRANSPORTATION STANDARD  
DRAWING FOR ROAD AND BRIDGE CONSTRUCTION,  
AND AASHTO-GEOMETRIC DESIGN OF  
HIGHWAYS AND STREETS.

LILA CANYON

# TYPICAL ACCELERATION DECELERATION INTERSECTION

DATE: DECEMBER 1999

DESIGNED BY: EIS

SCALE: 1" = 350'

FIGURE 2.2



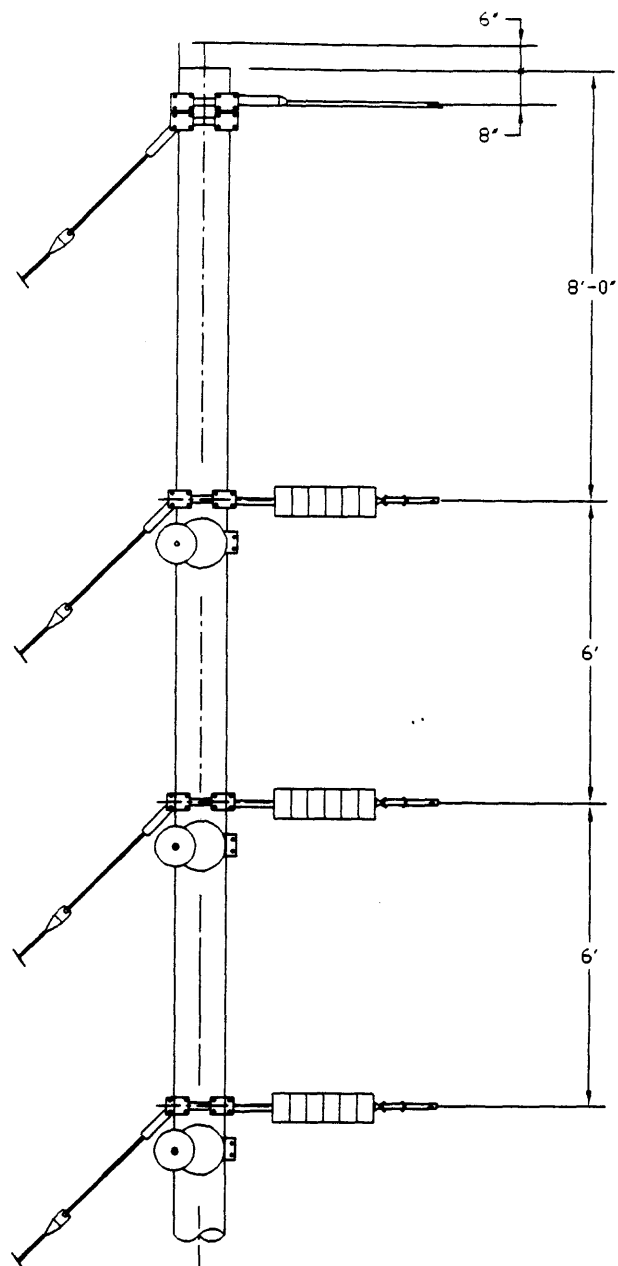
**46 kV Power Line Development** - A 1.3 mile 46 kV (46,000 volt) power line located on public land would be constructed concurrent with construction of the surface facility and proposed road. The proposed power line would tap the existing Utah Power 46 kV Moab-Price #1 power line in T. 16 S., R. 14 E., Section 16 and proceed east to the proposed mine surface facility. Construction within a 100 foot wide ROW (15.76 acres) would be conducted by ground crews using tracked and/or rubber tire vehicles. Specific steps to complete the power line includes pole placement, cross arm assembly, line suspension and tension, installation of a switching station at the tap point, and metering station and substation within the area of the proposed mine surface facility. Upon completion of the line, the operational ROW would be minimized to 80 feet (12.61 acres). The proposed route of the power line and associated facilities are shown on PLATE III.

The power line would require the establishment of approximately 15 pole sites. Pole types would be single "C2T" and "HPS" structures, double "ES" structures, and triple "C3P" structures (FIGURE 2.3, 2.4, 2.5, and 2.6). Structures would be constructed using wood poles, with heights ranging from 60 to 80 feet. All features of the line hardware (insulators, wire, poles) would be non-reflective and designed to be raptor-safe, as described by the Raptor Research Foundation in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996.

Construction of the power line in the second year of construction could employ as many as 20 people. No new roads would be created during the construction, operation or maintenance of the proposed power line. Access for all phases of the power line would be gained by the existing roads within the area. Where accessible, rubber tired construction/maintenance vehicles would travel perpendicular from the road or trail to each pole location. The proposed power line has been designed to minimize the number of employees necessary to maintain its length. Maintenance of the line and associated operational facilities would be on an as-needed/emergency basis. Maintenance access would be along established roads by 4x4 vehicle or snow machine and within the 80 foot operational ROW. The proposed power line would be compatible with the other ROW's. The power line would be intersected to the proposed coal haul road ROW at the surface facility site. However, no interference with this line or any other line within the area would be anticipated.

The staging areas would be located within the proposed surface facility area, and would be utilized for equipment and material storage and assembly. The construction vehicles to be used would include two line trucks, two bucket trucks, a wire trailer, a pole trailer, and a crew truck. A crew consisting of 12 individuals and a line truck with an auger attachment would be used to dig the holes within accessible areas along the ROW. Holes would be excavated to a depth of eight to 10 feet and 14 feet where anchor structures are required. In areas of limited access, the 20 foot boom on the line trucks could be used to auger holes. All holes would be located as to create as little disturbance as possible.

Poles would be transported to the site by truck, where the structure components (cross pieces and insulators) would be assembled on the ground and erected by a truck-mounted crane. In areas of thick vegetation and/or where vegetation may impede the performance of the active line, vegetation would be cleared by hand-held chainsaws. This cut vegetation would be stockpiled and used later to scatter over any reclaimed areas to provide solar protection on newly revegetated sites.



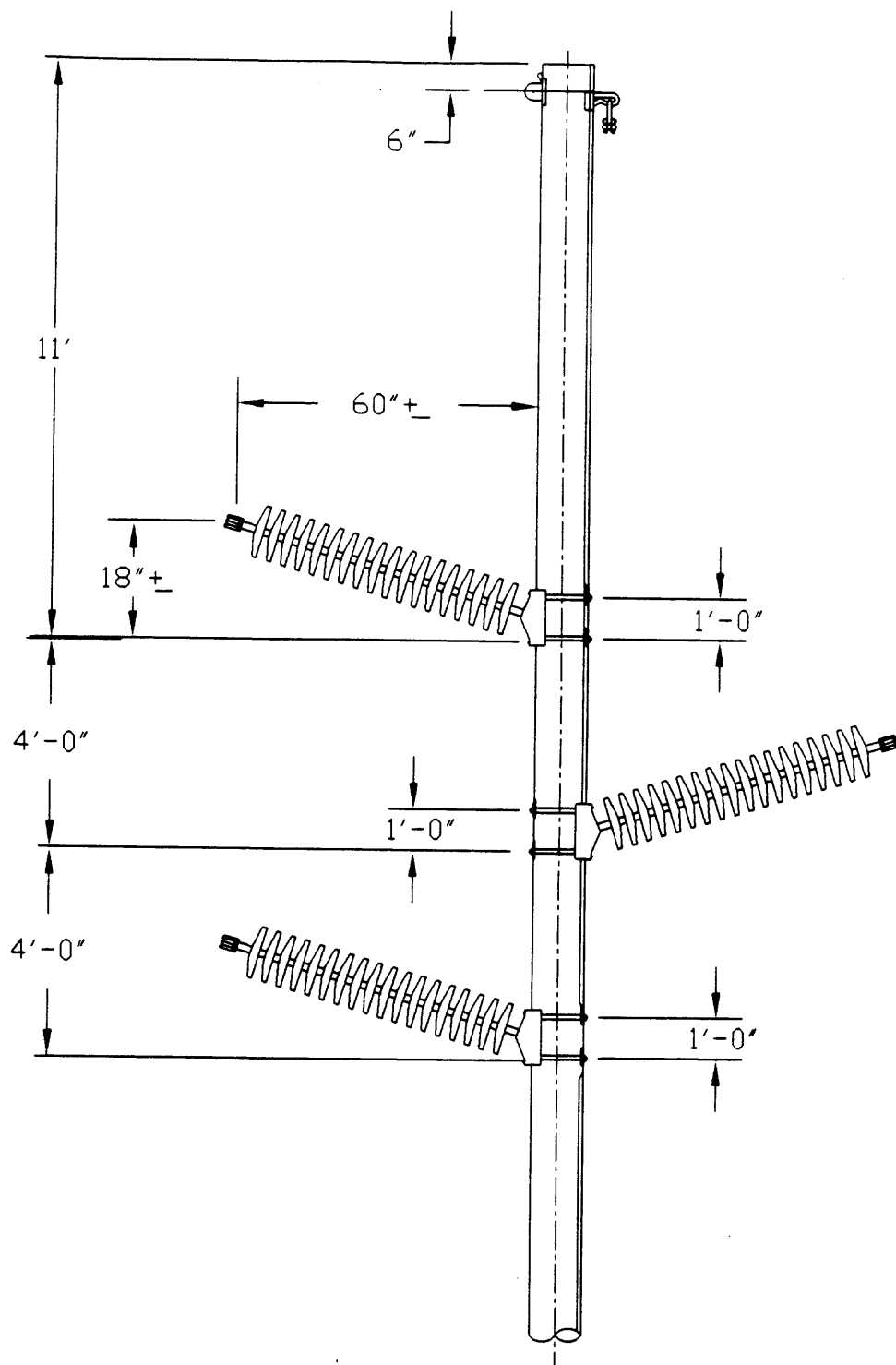
**NOTES:**

1. FOR SOCKET EYE, EXTENSIN LINK AND CONDUCTOR STRAIN CLAMP CHOOSE APPROPRIATE TENSION HARDWARE.
2. GROUND WIRE TO BE CLIPPED TO POLE AT 2'-0" INTERVALS AND BONDED TO POLE BANDS.

**FIGURE 2.3**

**C2T**

**46 & 69 K.V. STRUCTURE  
(6 INSULATORS PER STRING)**

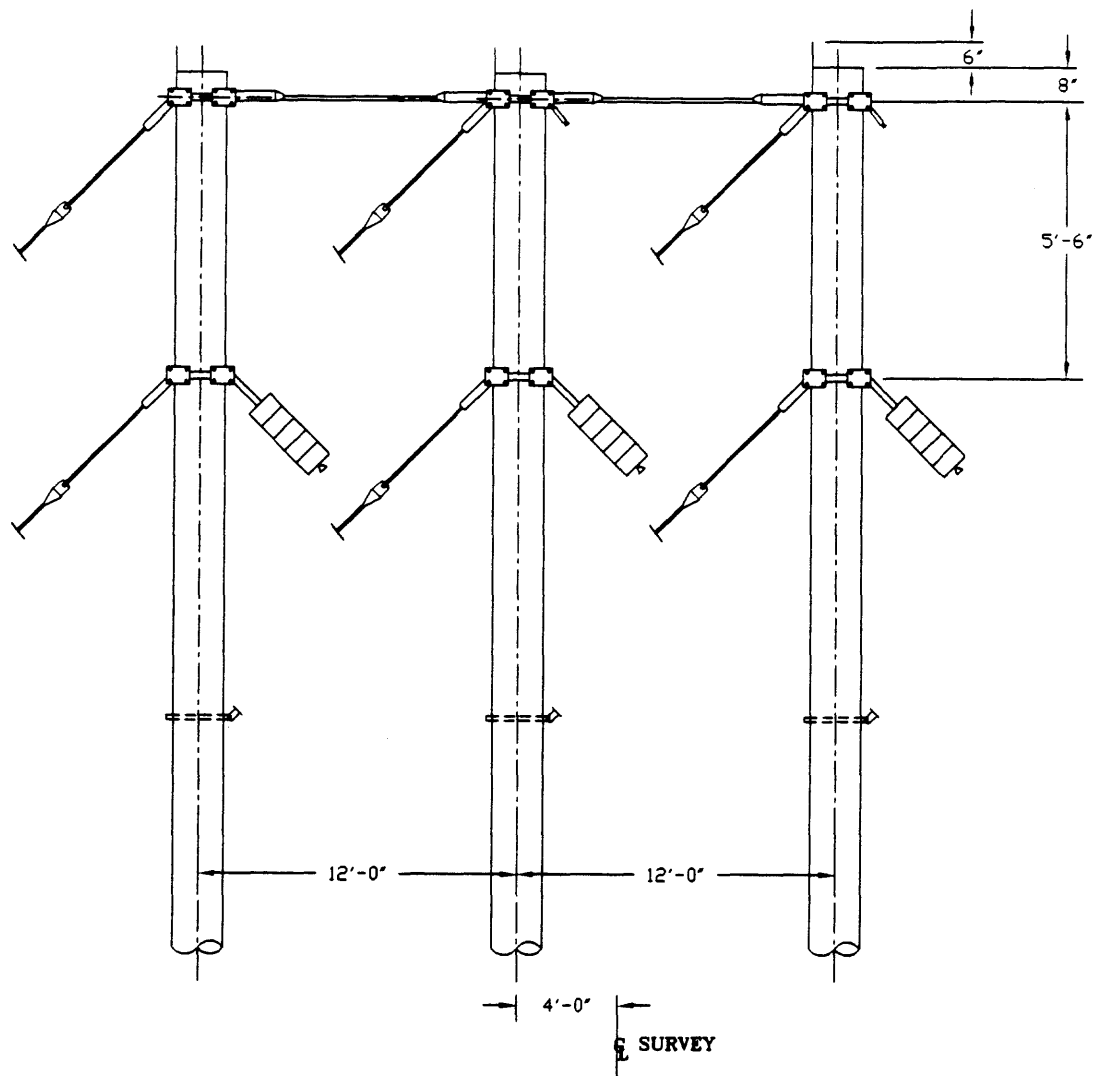


**FIGURE 2.4**

"HPS" RAPTOR SAFE  
46 / 69 K.V. STRUCTURE  
(POLYMER INSULATORS)



**ES 46 KV STRUCTURE  
(3 INSULATORS PER STRING)**



**NOTES:**

1. CHOOSE CORRECT MODULE FOR CONDUCTOR HARDWARE.
2. GROUND WIRE TO BE CLIPPED TO POLE AT 2'-0" INTERVALS AND BONDED TO POLE BANDS.

**FIGURE 2.6**

**C3P**

**46 & 69 K.V. STRUCTURE**

When the structures are in place, the conductor would be strung. A sock line would be laid along the route by hand and light vehicle. Ground crews would place the sock line in pulleys on each structure at the insulator location. The conductor would then be pulled up by the pulleys and through the insulator with the assistance of a reel truck, or by hand, before moving to the next pole location. Wire stringing lengths for this project would be limited to 0.5 miles between pull sites due to the angles, terrain, and inability of the wire pulling equipment to pull the conductor into place. Locations within the proposed power line route would be utilized as pull sites during stringing activities. These pull sites, approximately 0.25 acres in size, would be situated within the ROW. A switching station may be installed where the proposed power line would tap the existing power line. Location of the switching station would be located on a 200 foot by 200 foot area adjacent to the existing power line.

**Development of the Lila Canyon Mine Surface Facility** - Construction would commence concurrently on the surface facilities associated with the development of the Lila Canyon Mine. The proposed surface disturbance area is shown on PLATE I and II. These plates depict the maximum potential disturbance around the facilities that would be used for the life of the mine. The proposed facility area would be approximately 39.6 acre, but only composed of an anticipated on-the-ground disturbance of 35 acres. This area would be the total disturbance needed for the 20 year life of the mine and would be reclaimed following the completion of underground mining activities. Surface structures and facilities for the Lila Canyon Mine, an underground mine, would be constructed in Lila Canyon near the fork in the canyon located at T.16 S., R.14 E., Section 15, SE 1/4 SW 1/4 (PLATE II and PLATE II-A). The function of the surface facility area would be to provide for mine access, mine ventilation, coal storage, coal loading, warehousing, offices, and the bathhouse.

The Lila Canyon Mine is currently within the permit review process of a Mine and Reclamation Plan (MRP) Permit Application for the UDOGM (Review in Progress). This permit application with the UDOGM requires that all proposed mine and mining activities be described in full detail in relation to legal issues and bonding, as well as engineering and how it relates to soils, biology, land use, geology, and hydrology. In association with the proposed Lila Canyon Mine engineering actions, mitigation as recommended by the UDOGM in the form of operational stipulations and creation of successful reclamation procedures upon the cessation of mine operations have been incorporated into each resource discussion within the MRP. Therefore, each action as proposed within this EA has taken into consideration the various resources present and UDOGM requirements to minimize impacts to them. Actions as described within this EA have been summarized from the detailed Lila Canyon Mine analysis.

The mine site surface facilities would be located in Lila Canyon where the Lower Sunnyside coal seam outcrop is accessible. Because of the narrowness of the canyon in this area, surface facilities would be confined to a narrow strip along the bottom of the canyon. Suitable surface area for the mine site would be created by constructing a series of earthen pads within the canyon bottom. This would be accomplished by cut fill material and by leveling out the area in the bottom of the canyon drainage. The average gradient of Lila Canyon in the mine site area is approximately 10 percent. Therefore, the mine pads would be constructed as a relatively level pad with a cut at the base of the

escarpment. Each individual pad would be dedicated to a specific function as part of the overall mine site operation. Access roads would connect the various pad levels with one another, as well as to an underground rock slope to the portal bench.

The proposed mine site is located upon an alluvium bench in an area where the two forks of Lila Canyon converge. The mine office, parking lot and a sediment pond would be located within the main canyon. The proposed road which provides access to the mine site would enter the mine yard in this area. The truck loop and truck loadout would be located within the confluence area. The confluence area would also contain the crusher building, the coal storage pile, a topsoil storage area, the employee parking area, bath house, substation, portal area, and a shop/warehouse material storage area. The left fork would contain the water treatment facility and storage tanks.

As part of the overall mine site development plan, certain major construction tasks must be accomplished in a prescribed manner. Most of these construction tasks are common to many, if not all of the area described above. The following tasks are listed in order in which they would generally be expected to occur within any given area of the mine site. However, in practice many of these construction tasks would be occurring simultaneously, but at different areas, throughout the mine site. This is attributable to the fact that the mine site construction would be started at the base of the alluvium bench and proceed toward the escarpment and up the canyon. As primary initial tasks are completed at the lower reaches of the site, secondary tasks can begin even though the primary tasks may not yet be completed in the upper reaches of the site. A more detailed construction and reclamation plan, as prepared by UEI for their MRP is included as APPENDIX D.

- **Clearing and Grubbing** - One of the earlier phases of construction would involve the removal of all trees and shrubs from the mine site area. Since there are no large commercially valuable trees, a BLM timber appraisal would not be necessary to determine the value of these resources. Smaller pinyon and juniper trees would be cleared and transported to a green wood storage area within the proposed ROW for public fuel harvesting use. Shrubs and all other slash material would be buried in a controlled manner within the pad fill in nonstructural areas such as the coal storage pad and the material storage area. In order to avoid compaction complications, slash would be buried away from any structure that would be installed in the general area.
- **Construction of the Sediment Pond** - Once the initial grades are established the construction of the initial sediment pond would commence. The sediment pond would consist of an 8.4 acre- foot retention pond with an emergency spillway and decant device. The pond could be decanted into the existing drain ditch adjacent to the road where it would flow unimpeded to the adjacent undisturbed drainage. In this manner the sediment pond would be installed as early as possible in the construction schedule. The pond would then be in place for the entirety of the remaining construction activities and would provide maximum sediment control for the rest of the project.

The pond would be constructed in the lowest quadrant of the disturbed area whereby most mine site disturbed area drainage would drain initially to the pond. The capacity of the pond

would be well in excess of the 10 year, 24 hour precipitation event requirements. However, if the total pond capacity was exceeded, the over flow from the pond would exit through a riser-type culvert primary spillway equipped with an oil skimmer. This riser spillway would lead directly to the main drainage located below the surface facility area. One advantage of the pond is its proposed location adjacent to the roadway. This would greatly simplify sediment monitoring and clean out. It would also simplify the process of decanting the pond in a manner that meets Utah Nonpoint Discharge Effluent Source (UNPDES) requirements. The open channel spillways would be constructed to pass the 10 year, 24 hour storm event. The spillway would be lined with concrete or grouted rip-rap, and have a bottom width of five feet; a freeboard depth of two feet; and 2:1 sideslopes. The pond would also be equipped with an open channel emergency spillway capable of handling a 25 year, 6 hour storm event. Rip-rap would be installed at the outlet of the open channel spillways to protect the earthen structures from erosional forces.

- **Topsoil Removal, Salvage and Stockpiling** - Available soil over the area ranges from about six to 48 inches, of which an average soil layer of about eight inches thick would be removed and stockpiled as topsoil. The upper six to twelve inches is the most suitable soil, however, the subsoils over much of the area support root growth to depths of about 48 inches. Topsoil would be salvaged with backhoes, trackhoes, and/or front end loaders and hauled by dump trucks to the designated UDOGM topsoil storage area within the permit area. As much as 43,000 cubic yards of topsoil would be salvaged. In conjunction with topsoil salvage, the large boulders of approximately three feet in diameter and larger would be separated and piled near the topsoil stockpile or placed at appropriate sites in the area.

The topsoil storage area is proposed in the southwest corner of the facilities site near the sediment pond. The stockpile would be protected from erosion and sediment production by roughening the surface, revegetation, berms, and silt fences. Subsoil materials would be used over the area for facilities site development and then retrieved for soil reconstruction during reclamation.

- **Face Up of Coal Seam/Preparation of Portal** - Two underground rock slopes (approximately 1,200 feet long) would be tunneled up from the toe of the mountain on a 12 percent grade to intercept the down dipping coal seam. The coal would be mined to the south to break out at the escarpment face approximately 500 feet above the mine facility yard. At this point, the mine ventilation and belt portal would be developed. As soon as possible after construction begins, the coal seam would be faced up and the portal area excavated on the southeast side of canyon within the right fork. Prior to facing up the portals, the area would be cleared and grubbed, and topsoil stored. The pad would be constructed long enough to accommodate at least two portal openings for a travel-way and belt, while minimizing the height of the cut face. Minimizing the extent of the cut face is an important consideration not only in the initial mine development but also and even more so for final reclamation. The portal pad would be constructed and stabilized as necessary to conform to the safety requirements of Mine Safety and Health Administration (MSHA).



In order to achieve minimum disturbance of the canyon side slope, the portal pad would be built on fill.

- **Construction of Earthen Pad and Access Roads** - According to computer models of the mine site earthwork, all borrow would be generated within the site to achieve the proposed mine yard configuration. Fill would be placed in 18 to 24 inch lifts and compacted to a minimum 90 percent density for nonstructural areas, and to 95 percent density in structural areas. Nonstructural areas include parking lots, material storage areas and coal storage areas. Structural areas include all areas under buildings, conveyor belts, substation, backfilled areas around culverts and reclaim tunnels, roadways, mine fan and reinforced earth retaining walls. Experience has shown that this material can usually exceed 95 percent compaction using standard wheel rolling methods, although vibratory compaction would be used in critical structural areas. All earthwork would be required to meet a minimum of 4,000 pounds per square foot (psf) load-bearing capacity. Construction emphasis and priority would be given to those pad levels that are designed to accommodate key structural elements of the surface facilities. These include the pad levels associated with the coal pile reclaim system, the substation, the elevated conveyor gallery, bath house, and shop/warehouse building. Some pad construction would involve cutting into the existing side slopes. Cuts would be minimal, and would not usually extend up-slope more than about 20 feet above the completed pad level. The primary purpose of the sideslope cuts is not to generate fill volumes. Cut slopes area would also be necessary to define the limits of the pads for the purpose of layout and engineering design. Clear slopes would also be needed to assure long term site maintenance. Before any slope cuts are made, topsoil would first be salvaged and stockpiled. After the topsoil has been removed and protected as described previously for topsoil stockpiling, the substrate material would be excavated.
- **Installation of Drainage Controls** - As previously stated, the sediment pond would be constructed as early as possible in order to provide maximum sediment control during the term of the construction project. Once the pad levels are constructed, along with the interconnecting roadways, drainage control ditches and culverts would be constructed and culverts installed. Disturbed area ditches and culverts would be designed to handle a 10 year, 24 hour storm event. Where necessary, ditches would be lined with concrete or rip-rap to prevent erosion where velocities are expected to exceed five feet per second (fps). Culvert inlets would be designed to provide adequate freeboard for design flows; outlets would be rip-rapped where necessary to prevent scouring.
- **Construction of Coal Handling and Associated Facilities** - Construction of the coal handling facilities would be scheduled to allow the mine to get into full production as quickly as possible. The underground mining operation cannot function smoothly until the elevated conveyor gallery and discharge structure are fully operational. On the other hand, the mine conveyor cannot become fully operational until the mine working area is developed far enough underground from the portals to allow the conveyor to be extended into the mine works and become an integral working part of the continuous miner production section.

Once the initial mine works have begun, connected up underground with crosscuts, the conveyor can then become operational.

Other integral components of the coal handling facilities necessary for full production include the coal reclaim tunnel, crusher building, truck loadout and interconnecting conveyors. Only after this system is completely operational, can mine development and coal production begin in earnest. Other important structures necessary for full-scale mine surface production include the main substation, water delivery system, and mine ventilation fan.

After the critical path coal handling facilities and mine development structures are fully operational and the underground mine development is proceeding on course, full attention would be focused on completing the ancillary surface facilities. Once the permanent structures are finished, the temporary accommodations used during construction can be removed from the site.

Buildings to be constructed at the mine site include: an administrative office, a shop/warehouse building, and a bathhouse/lamphouse building. The shop/warehouse would be used to repair and store mine equipment and supplies. The yard area around these buildings would be used for additional outside storage and parking. The bathhouse and office buildings would be sized to accommodate a workforce of approximately 140 people.

PLATE II-A is an overview of the mine surface facility. The following facilities would be constructed in conjunction with the mining operation:

*Administration Office/Bathhouse/Lamphouse-* The main office would be a framed building measuring approximately 80 feet wide by 250 feet long. It would handle the administrative functions such as accounting, engineering, payroll, marketing and management. The bathhouse would be sized to accommodate the anticipated workforce. Located at one end of the bathhouse building would be the lamphouse. The main office would be located on a dedicated pad at the lower (western) extent of the mine yard. Parking would be made available in the area adjacent to the main office.

*Mine Fan -* The mine fan would be located at the return air portal. It would be a 12 foot diameter, direct drive, 1,000 horsepower (hp), axial vane exhausting type fan. The fan housing would include airlock travel doors for machinery and personnel. The exhaust duct work would be equipped with acoustical sound-proofing material to minimize noise levels.

*Shop/Warehouse -* The shop/warehouse building would be a prefabricate metal structure measuring approximately 100 feet wide by 150 feet long. It would be located in the southwestern part of the mine yard conveniently adjacent to the mine road. A storage area for materials and supplies would be located nearby, as would be the fuel storage, rock dust storage and garbage repository (dumpster) facilities.

*Coal Stockpiling Facilities* - Coal would be brought out of the mine and delivered to the surface via a 2,000 ton per hour, 60 inch wide mine conveyor belt. The mine conveyor would exit out of a portal located about 40 feet high on the west side of the right fork of Lila Canyon. Even though the mine portals are located in the right fork, the run-of-mine coal would be stockpiled in a storage area located in the confluence of the forks. Coal would be transported from the right fork portals to the stockpile by a 600 foot long, elevated overland conveyor gallery. This 2,000 ton per hour, 60 inch wide conveyor would be covered and supported along a series of box truss galleries, elevated approximately 50 to 60 feet above the mine yard. These conveyor truss galleries would be supported by several two-legged steel bents spaced approximately 120 feet apart. After crossing the point that separates the right and left forks, the conveyor would terminate at a cantilevered discharge structure at a location above the coal stockpile area. A conical coal pile would be built directly below the discharge structure. The pile would be about 80 feet high at full capacity and contain about 30,000 tons of coal. Storage can be obtained by pushing the pile northward onto the coal storage pad.

*Coal Reclaiming Facilities* - A 13 foot diameter multi-plate reclaim tunnel would be located below (underneath) the coal pile. Two reclaim draw down ports located at the end of the tunnel would allow coal to be reclaimed from the bottom of the pile directly onto a 54 inch reclaim conveyor located within the tunnel. Each reclaim port would contain a pile activator, a hydraulically operated single bladed shut-off gate, and a discharge chute leading to the reclaim conveyor. Each port would be capable of loading the reclaim conveyor at a full capacity of approximately 1,400 tons per hour. Once the coal has been loaded onto the reclaim conveyor, it would then be transported out from underneath the pile. The reclaim conveyor would bring the coal out of the tunnel and transport it to a crushing/screening building.

The crusher building would be an open steel structure containing a 40 hp, eight by 20 foot scalping screen which would remove all minus two inch coal ahead of the crusher. The plus two inch coal from the top screen deck would be fed to a 300 hp hammermill impact crusher where the coal would be reduced to a two inch product. All transfer points within the crusher building would utilize enclosed chute work to contain and control fugitive dust emissions. These transfer points include the transfer from the reclaim conveyor to the screen, the screen unders (minus two inch) to the loadout conveyor, the screen overs (plus two inch) to the crusher, and the crusher discharge (minus two inch) to the loadout conveyor.

Within the crusher building would also be located a self cleaning tramp iron magnet (located at the reclaim conveyor discharge pulley ahead of the crusher), and an automated sampling system. The crusher building and the coal reclaim tunnel would be separated by a 25 foot wire reinforced earth wall. The crusher building would be located on a bench on the lower (down-canyon) side of the wall and positioned in such a manner that gravity flow would aid the movement of coal through the screening, crushing, and sampling operations.

From the crusher building the crushed and screened two inch coal would then be loaded onto

a covered 48 inch wide loadout conveyor operating at a rate of 1,400 tons per hour and pass to one of three product piles or transport storage pile (approximately 100,000 tons). The coal would then be transported to an automated truck or loadout station. The truck loadout would be an elevated steel frame structure constructed high enough to allow the trucks to be positioned under a contained chute during loading. Electronic sensors would determine when the truck is properly positioned under the chute. The feed conveyors (i.e., loadout conveyor and reclaim conveyor) would start and stop automatically to load the individual truck trailers with a predetermined amount of coal. Certified belt scales would be used to control the loading process.

The truck loadout would be located at the upper end of the truck loop. The loop would be long enough to accommodate up to four empty trucks in the queuing lane waiting to be loaded. After being loaded, the trucks would leave the mine site and haul the coal to an off-site unit train loading facility. All conveyors would be covered and all conveyor transfer points would be enclosed.

*Electrical power* - The proposed 46kV overhead power line would terminate at a substation on the mine site. Located in the right fork below the portal bench, the substation would contain a 12 MVA 69 kV/12.5 kV transformer, along with various other electrical power control apparatus (air-break switches, visual disconnects, bussing, ground fault detection, vacuum circuit breakers, power factor capacitor banks, metering equipment, and a control room). From the secondary side of the substation, power would be distributed throughout the mine yard and to the underground workings at 12.5 kV. At various locations within the mine yard, the power would be routed through a set of 12.5 kV/4160 V/480 V transformer banks and motor control centers to operate the surface equipment. These combination transformer/motor control center units would be located at the crusher building, overhead conveyor drive station, mine fan, and shop/warehouse.

*Water Facilities* - A water right would be filed with the Utah Division of Water Rights for use of the water from the flooded Horse Canyon mine works. Upon approval of the water right application, a water line within the underground workings from the flooded works to the storage facilities within the surface facility area would be constructed to serve the culinary/potable requirements of the proposed mine. Water storage facilities (tanks) would be located on the surface to provide storage for usage and as pre-storage before being pumped into the mine to an underground storage sump for use in the mining operation. The surface storage tanks would be located above the bath house to provide sufficient static head (pressure) for yard distribution. Sewage from the administrative office and bathhouse would be treated by separate underground septic tanks and drain fields.

*Telephone Service* - Telephone service would be provided using conventional phone service provided via a fiber optic line as described in the utility corridor section.

*Other Structures* - Additional, smaller structures include miscellaneous storage sheds, pump house, above ground storage tanks (for fuel, water, and dust control chemicals), powder

magazines, rock dust storage tanks and trash containment structures. All buildings and structures would be made of conventional construction materials including wood, masonry, or steel. Buildings would be color coordinated to blend in with the natural surroundings.

**Conventional Mining of Existing Coal Reserves** - Mining would begin in Section 15, T. 16 S., R. 14 E. in the Sunnyside seam. Development of the Sunnyside seam would be in a down dip directions toward the east, and would be accessed by two 1,200 foot slopes driven up at 12 percent slope from the base of the cliffs. Phase I production has been estimated at 200,000 tons of coal during the first year and escalating to 2.5 million tons by the fifth year.

Mine pillars would be sized by taking into consideration the coal strength, depth of cover, width, and height of pillars. Mine structural design would incorporate one or more of the following methodologies: Obert-Duvall, Holand-Graddy, Holland, Salamon-Munro, or Bieniawski. Mine experience and past mining history in the area would have as much influence on pillar sizes as do the engineering formulas.

Mine production would begin with the slope construction. Once the coal is encountered development would proceed using continuous miners and various haulage equipment. Battery, cable, or continuous haulage may be used in conjunction with continuous miners in development. Continuous miners would account for all the production during the first two years. Mining would consist of driving mains, developing room and pillar panels. Gate entries would also be proposed for future long wall mining associated with proposed Phase II actions. No exploratory drilling is anticipated.

Roof control and ventilation plans would be submitted to the Mine Safety and Health Administration and approved prior to any underground mining activities. Ventilation of the mine would be by an exhaust type system. It has been estimated that 900,000 cfm would be required at full production. Intake air would be supplied by slopes and entries from the surface. Dust suppression would be accomplished by the use of sprays on all underground equipment as required. Sprays would also be used along sections of the conveyors and at transfer points.

The workings are expected to produce some water with more water being produced as the depth of mining increases. Part of this water would be used for dust suppression. The remainder would be collected in sumps and pumped to mined out sections of the mine or to the surface and treated when necessary.

**Wildlife Enhancement Projects** - UEI would provide two rainfall water catchments to benefit bighorn sheep populations and habitat use within the area above the proposed mine site. These guzzlers would be installed by BLM and Utah Division of Wildlife Resources (UDWR) in suitable locations along the cliff-talus habitat south of the Lila Canyon area. This project would be implemented in the same manner as described in detail in the EA "Saddlehorn Water Catchment" EA Number UT-066-97-1 which addressed similar concerns relative to Bighorn Sheep.

In addition to this project, UEI would complete a vegetation treatment project within the affected area to increase small mammal populations, and thus increasing the forage capacity for area raptor populations. Project design would be provided by BLM and UDWR and involve treating and reseeding approximately 93 acres of habitat. The vegetation treatment would be designed to improve diversity and density of vegetation cover types and create a mosaic of treated and untreated areas to maximize benefits of edge for wildlife species.

**Description of Physical Facilities of the Proposed Action - Phase II** Activities associated with Phase II are solely dependent upon market conditions and status of production associated with Phase I. However, the actions currently proposed for Phase II are known and include:

- Asphalt paving of the coal haul road
- Long wall mining of existing coal resources

The following section describes the general proposal for each activity associated with this phase.

**Asphalt Paving of the Proposed Coal Haul Road** - A four inch asphalt layer would be added to the new coal haul road constructed from the mine to U.S. Highway 191/6. This would not constitute additional disturbance, but would allow for increased traffic and speed while resulting in a complete reduction in fugitive dust. Traffic resulting from Phase II development has been estimated at 550 vehicles (staff and coal haulage) per day at full production of four million tons of coal.

**Long wall Mining of Existing Coal Reserves** - The proposed Phase II mining would utilize all of the same equipment, personnel and facilities as described in Phase I. However, a long wall unit may be introduced, thus potentially increasing production to as much as four million tons of coal per year with the same workforce. PLATE II shows what portions of the existing lease areas would be mined with the long wall miner. Surface facilities described in the proposed action as Phase I were designed to accommodate the potential increase in production. No exploratory drilling is anticipated.

**Stabilization, Maintenance and Operation Plan** Procedures that make up the following operation plan are designed to minimize and stabilize disturbances to resources present within Phase I and Phase II of the proposed action during its construction, operation and maintenance. Construction activities as described for the mine surface facility were designed to minimize and stabilize disturbances associated with that portion of the proposed action. Support facilities would be operated and maintained in accordance with the permit issued for the Lila Canyon Mine and located, operated and maintained in a manner that prevents or controls erosion and siltation, water pollution and damage to public, state, or private property. To the extent possible, the best technology currently available would be utilized to minimize impacts to area resources and related environmental values. The support facilities would be designed to minimize additional contributions of suspended solids to the stream flow or runoff outside the permit area and, should any contributions occur, such contributions would not be in excess of limitations of Utah or federal law. A full description of the affected resources and impacts to them are described in CHAPTER 3.0 and CHAPTER 4.0

Soil disturbance during the construction would be restricted to the ROW associated with each portion of the proposed action. Unauthorized cross-country vehicular travel by construction crews would be prohibited. Construction activities would be conducted to minimize erosion and in accordance with the natural topography where possible. Exposed areas resulting from construction and the excavation of the described sites would be stabilized using wood fiber mulch and tackifier with the approved BLM seed mix deemed to stabilize the slope and reduce erosion. On slopes exceeding 2:1, native shrubs with significant root structure may be hand planted on a 10 foot spacing.

In order to minimize watershed and erosion damage during wet or muddy periods, access to the ROW's and mine construction site would be restricted. Construction procedures would be consistent with those described within the Utah Nonpoint Source Best Management Plan for Hydrologic Modification. Where runoff and drainage controls would be required, they would be constructed to BLM and/or UDOGM standards. Culverts underneath the road would be installed at a grade no greater than three percent, with rip-rap armoring on the outflow. In areas that warrant there use, perforated culverts may be used to minimize alteration of existing surface/subsurface water exchange. The hydrologic regime would be protected by the installation and implementation of protection measures at all proposed crossings and drainage modifications. This would deter the potential for side cutting and further impact to the drainages surrounding the crossing. Where required, other flow control structures may include energy dissipaters and channel to sheet flow dispersion fans. As required, hydrological protection in the form of sediment and runoff controls would be installed below all drainage areas. Straw bales would be installed in the established borrow ditch along all slopes in excess of 12 percent. Activities within all wash and gully areas would be limited.

All drainage from the mine site disturbed area would be conveyed to and treated by a sediment pond located within the disturbed area. The sediment pond size has been calculated based on a 10 year, 24 hour event. Ditch and culvert design are also based on a 10 year, 24 hour event. During routine operation, the pond would be visually inspected daily for unusual conditions and integrity. Maintenance of the mine surface facility would include the periodic cleaning of the sediment pond, drainage control ditches and culverts in order to maintain their function. Clean out material would be disposed of off-site in an approved solid waste disposal facility, such as East Carbon Development Corporation (approximately ten miles northwest of the surface facility). A spill prevention control and countermeasure plan (SPCC plan) has been developed to protect the undisturbed drainages from accidental spills of oil or other petroleum products within the disturbed area. This plan would be available for review at the Lila Canyon Mine site.

In the event of spills of petroleum based products during the construction of the proposed action, procedures outlined in the Emery County and Lila Canyon SPCC Plans would be followed. The BLM, as well as the Utah Department of Environmental Quality, would be notified if the release meets the definition of a hazardous waste as defined in 40 CFR 261.

During the operation and maintenance of the road, the use of covered trucks to prohibit blow off of coal fines along the proposed haul road and U.S. Highway 191/6 would be used. Enforced speed

limits of 35 MPH would also reduce the potential of coal blow-off.

To maintain the cultural, historical and paleontological resource integrity of the area, construction crews and staff would be provided with instructional materials regarding the identification, value, legal protection and treatment of these resources. If any cultural, archeological or paleontological resources are discovered during construction or any operations associated with the road, power line, or mine, all activities would cease at the area of the manifestation. The authorized agency would then be contacted to evaluate the importance and potential of the site. Mitigation measures would, at that time, be made for the value of the resource site. Construction and/or maintenance crews would avoid the site until the resource potential has been determined.

All existing grazing management facilities (corrals, water sources, etc.) would be replaced concurrent with the construction described. A fence would be constructed along the road prior to its use. This three wire strand fence built to BLM grazing management standards, would take into account wildlife and visual resources, and would prohibit livestock access along the traveled road for the life of the project. UEI would install and maintain a 12,000 gallon water tank for the life of the project to facilitate livestock use of the allotment on the northern side of the proposed road and fence. A section of the existing route in the NE 1/4 NE 1/4 of Section 32 in T. 16 S. R. 14 E. would be left to facilitate placement and access of the water tank from the proposed coal haul road. Upon review of roads to be removed as described within the proposed action, the establishment of cattle guards on any remaining roads intersecting the haul road would be evaluated. With termination of use of the haul road, maintenance of these facilities would be transferred to the BLM on public lands.

For reducing visual contrast, reduction of disturbance along the route of the road is the most effective operational technique. Consideration would be given to the basic landscape (form, line, color, and texture) to minimize visual change, while meeting the safety and use capacity of the road. When possible, soil would be contoured using equipment necessary to conform with the terrain and adjacent land within the road ROW. All constructed facilities (fences, mine surface facilities, etc.) would be painted an approved BLM flat grey color, developed to reduce line and form contrast with the existing environment. During the operation of the proposed action, the use of enzyme treatment during Phase I and asphalt paving in Phase II on the road surface would minimize and eliminate dust plumes from traffic. An effort would be made to direct light toward the mountain face as opposed to the valley floor to minimize night glow. No long distance views of bare bulbs would be seen and all lights within the surface facility would be shielded.

To the extent possible, all foliage adjacent to the power line would remain undisturbed to provide maximum available screening of the line relative to the landscape character type. Visual disturbances would be minimized by using poles colored a shade darker in tone than the surrounding landscape, the use of non-reflective hardware, and by placing the poles out of public view where possible. To minimize the view of the power line from the proposed road, the construction and operational power line ROW's would be placed approximately 0.75 miles from the junction with the existing line and intercepting the proposed haul road at the proposed mine site.



Potential measures to help improve air quality for construction activities include proper maintenance of the construction equipment and limited travel on the construction ROW and dirt access roads. Dust generation from disturbed areas would be reduced through interim watering of active construction areas. An enzyme armor coating on the proposed coal haul road would minimize dust generated by traffic during Phase I, with paving in Phase II eliminating it all together. Final reclamation, which includes revegetation of all disturbed areas, would eliminate further impacts.

An air quality permit for the Lila Canyon Mine would be obtained from the Utah Division of Air Quality prior to conducting operational activities. Coal dust associated with the operations of the mine surface facility would be controlled on the conveyor system and transfer points by enclosures and sprays as necessary. Dust from unpaved mine access roads would be controlled by applying water or a dust suppressing solution. Coal would be reclaimed from the bottom of the stockpile directly onto a conveyor belt located within an enclosed tunnel located under the pile. The coal moisture level within the coal pile would be maintained at approximately 6.5 percent or greater by water sprays located on the main mine conveyor.

Noise reduction and control measures for construction activities would include proper operation and maintenance of manufacturer-installed noise abatement equipment. During operational use, enforced speed limits would limit area wide noise by reducing the need for Jake Brake application on descending grades along the proposed road.

Due to the increase in truck traffic along U.S. Highway 191/6, the operation plan would include the installation of signs warning of heavy truck traffic. Enforcement of posted speed limits, especially from the proposed coal haul road tie-in to U.S. Highway 191/6, would increase the awareness of the truck drivers and the reaction time to potential hazards. There would be an acceleration and deceleration lane to facilitate a safe merging of traffic.

Vegetation removal necessitated by the proposed action would be confined to the ROW. Vegetation removed would be set aside during construction activities, and/or left in place upon completion of construction where possible. Vegetation removed would be limbed, lopped and distributed over the disturbed or reclaimed area to increase solar protection for emerging vegetation. Reclamation or surface contouring to restore all disturbed areas would start upon completion of the project, or as specified by the BLM. Reseeding associated with the road, power and mine surface facility would be completed between October 1 and October 31 for both years. The area would be drill seeded with the seed mix shown in TABLE 2.2. This mix, designed for erosion control and slope stabilization, would be seeded along the edge of the roads and power line corridors and all disturbances anticipated during the life of the mine. The same mix, less the shrubs, would be used on the interim reclamation. Slopes exceeding 2:1 would be hydroseeded and hydromulched at twice the seed rate outlined for drill seeding.

In association with the areas that would be reclaimed, an effort would be made to reclaim the existing roads and four wheel drive trails that intersect the existing haul road. Where road sections are eliminated, cuts would be pulled back to the approximate original contour and drainages would be reestablished. Concurrent with recontouring, 200 pounds per acre of 16-16-8 fertilizer would be

incorporated into the top six inches of soil. An additional 100 pounds per acre of 16-16-8 fertilizer would be incorporated into the 2,000 pounds of wood fiber mulch and 200 pounds of tackifier per acre application if hydroseeding is utilized.

An awareness and appreciation of wildlife would be taught to all employees associated with the proposed action. All activities associated with the proposed action development would be coordinated to avoid optimal habitat use periods and areas for all wildlife species. If active/occupied raptor nests are located within 0.5 miles of any portion of the proposed action, construction would not begin within that area during the period of February 1 to July 15. Completion of all construction would occur on or before October 31 for each year, and prior to any established winter big game use of the area. Construction activity within bighorn sheep habitat would be prohibited during the lambing period of May 1 to June 15. The wildlife enhancement projects proposed should benefit local wildlife populations and their respective habitat uses.

All speed limits would be posted at 35 miles per hour or less on the proposed coal haul road. Where visibility along the road is limited by vegetation in excess of four feet, selective thinning would be conducted to minimize the potential for collision between vehicles and wildlife. BLM wildlife standards for fence construction would be incorporated into the coal haul road fence to allow for antelope and other wildlife movement, while allowing for livestock grazing management. The fence would be a wire fence, not exceeding 38 inches in height. The bottom strand would be a smooth (barbless), twisted metal strand, no less than 16 and half inches above the ground. The second barbed strand would be 10 inches above the bottom strand, with the top barbed strand 12 inches above the second. Distance between posts would be on exact 16 foot centers. As previously stated, existing roads and trails would be reclaimed.

**TABLE 2.2**  
**RECOMMENDED SEED MIX FOR ALL DISTURBED AREAS**

	<u><b>LBS PURE LIVE SEED/ACRE*</b></u>
<b>GRASSES</b>	
Needle and Thread	
<u>Stipa comata</u>	2.0
Indian ricegrass	
<u>Oryzopsis hymenoides</u>	2.0
Great basin wildrye	
<u>Elymus cinereus</u>	1.0
Galleta	
<u>Hilaria jamesii</u>	1.5
Russian wildrye	
<u>Elymus junceus</u>	1.5
<b>FORBS</b>	
Lewis flax	
<u>Linum lewisii</u>	1.5
Yellow sweetclover	
<u>Melilotus officinalis</u>	1.5
Palmer penstemon	
<u>Penstemon palmeri</u>	1.0
Globemallow	
<u>Sphaeralcea ambigua</u>	1.0
Small burnet	
<u>Sanguisorba minor</u>	1.0
Prostrate kochia	
<u>Kochia prostrata</u>	0.5
<b>SHRUBS</b>	
Winterfat	
<u>Eurotia lanata</u>	1.0
Wyoming big sagebrush	
<u>Artemisia tridentata wyomingensis</u>	0.5
Douglas rabbitbrush	
<u>Chrysothamnus viscidiflorus</u>	1.0
Fourwing saltbush	
<u>Atriplex canescens</u>	1.0
<b>TOTAL</b>	<b>20.0</b>

**Time-frame** TABLE 2.3 is a breakdown of activities proposed for both phases.

**TABLE 2.3**  
**CONSTRUCTION TIME FRAME FOR PHASE I AND PHASE II**

***Phase I***

**July 15, 2000-August 2000**

- Upgrade existing Lila Canyon Road to proposed surface facility site.
- Replace old culverts, borrow ditches and resurface and initiation of rock slopes.
- Implement interim drainage controls, earthwork for pad and site facilities
- Completion of rock slopes

**August 2000-September 30, 2000**

- Construct surface facility structures
- Begin construction of coal haul road

**September 30, 2000-November 1, 2000**

- Construction of coal haul road/acceleration, and deceleration lanes.
- Complete surface facilities (structures)
- Permanent sediment controls, sediment pond and all drainage diversions
- Construct 46 kV power line

**November 1, 2000-Dec 31, 2000**

- Begin coal production and stock piling

**May 15, 2001-July 15, 2001**

- Completion of coal haul road
- Initiate haulage of test quantities of coal

***Phase II - Anticipated***

**January 2005**

- Submit engineering and final design for paving coal haul road
- Initiate review of actions and impacts associated with Phase II

**April 30, 2005**

- BLM approval of final design

**May 15, 2005**

- Begin Phase II paving-coal haul road
- Mobilize equipment

**October 15, 2005**

- Completion of coal haul road upgrade, asphalt surface, signs, painting, guard rails

**November 7, 2005**

- Reclamation of all disturbed area no longer need for operational purposes

**Abandonment and Reclamation** The existing Lila Canyon Road would be maintained as a private mine road that would prohibit public access through the property for the life of the mine. The new coal haul road would be maintained by Emery County through a cooperative agreement with UEI. The expected life of the mine is 20 years, which upon cessation of activities, would be

dismantled and reclaimed. Lila Canyon Mine is in the process of obtaining their operation MRP with the UDOGM. Activities described for construction are described in full detail within that document. A summary of proposed reclamation activities is included in APPENDIX D. At the time of closure and subsequent reclamation of the Lila Canyon Mine, Emery County may find it to their advantage to cease full season maintenance of the road. However, elimination of the road is not expected to occur.

If UEI and/or UP&L terminate the use of the power line, it would be done in accordance to the BLM guideline stipulations at the time of removal. An appropriate schedule for activities associated with dismantling of the power line would be established at that time. Upon dismantling of the line, a reclamation plan would be implemented for the established ROW.

## **2.3 Alternatives Considered But Not Analyzed Further**

The following alternatives were discussed and dismissed during agency scoping in 1998 and 1999.

### **2.3.1 Alternative A - Use of Existing Horse Canyon Site for Coal Mine Operation**

This alternative would have utilized CR 125 (Horse Canyon Road) to the existing Horse Canyon graveled road that accesses the abandoned Horse Canyon Mine site. Rather than being located within Lila Canyon, the proposed mine surface facilities would be constructed at the old Horse Canyon Mine site, with access to the coal lease area being gained through improvement of the old underground workings. Generally, it is more dangerous to re-enter an abandoned mine due to the existing conditions within it than to develop a new entry. Preliminary engineering evaluation of this option determined that ventilation, mine dewatering and safety concern problems would be encountered with re-entering the Horse Canyon site.

The Lila Canyon reserves are located approximately 14,000 feet (2.65 miles) from the current Horse Canyon portal. Due to the amount of ventilation required to operate a modern mine and distance to the coal reserves, it would be necessary to develop as many as five new surface entries. These new entries, constructed as either a vertical shaft or outcrop access, would require additional fans and powerlines outside of the surface facility area. Preliminary engineering of this option indicated that as much as 1.8 billion gallons of water have entered the mine since its sealing in 1984. Past mine water samples have indicated that this water has a high total dissolved solid (TDS) and iron concentration. To meet UPDES discharge requirements of one ton per day of dissolved solids, only 85,000 gallons could be pumped out daily at this site.

The mixture of water and air tends to expand the rock and coal strata, creating an extremely unstable and unsafe condition to access the south lease reserves. In order to compensate for this structural problem, the entry material would need to be excavated and a shoring base built strong enough to compensate for the loss in integrity. Since some of the main pillars required for roof support that are in route to the Lila Canyon reserves have been mined, an additional unstable situation would

need to be rectified prior to the safe operation of the facility. Therefore, due to the project infeasibility associated with the construction of a numerous entries and extended ventilation system, the supported entry, and the increase in project disturbance to the surrounding environment in association with dewatering the old mine works, this alternative was dismissed from further consideration.

### **2.3.2 Alternative B - Use of the Horse Canyon Road/Lila Canyon Road for Coal Mine Operation**

This alternative would have utilized the proposed Lila Canyon Mine surface facility, power line and coal mining activity as described within the proposed action. However, CR 125 (Horse Canyon Road) would be upgraded and utilized for coal haulage and mine operations in association with the existing Lila Canyon Road. The existing Lila Canyon dirt road would be required to be upgraded to enable coal haul traffic and daily use for mine operations. Extensive cut and fill would be needed to create a wide enough road, as well as to establish a suitable grade and a safe and usable road to access CR 125. CR 125 would require that the entire road be redesigned and established to create an access suitable for coal haul traffic as well as remain usable for day to day use as a access route to Columbia and East Carbon from U.S. Highway 191/6. Due to the considerable upgrade of these two roads that would be required, this alternative was dismissed from consideration. APPENDIX B contains a letter from the Emery County Road Department as to the proposed requirements.

## CHAPTER 3.0 AFFECTED ENVIRONMENT

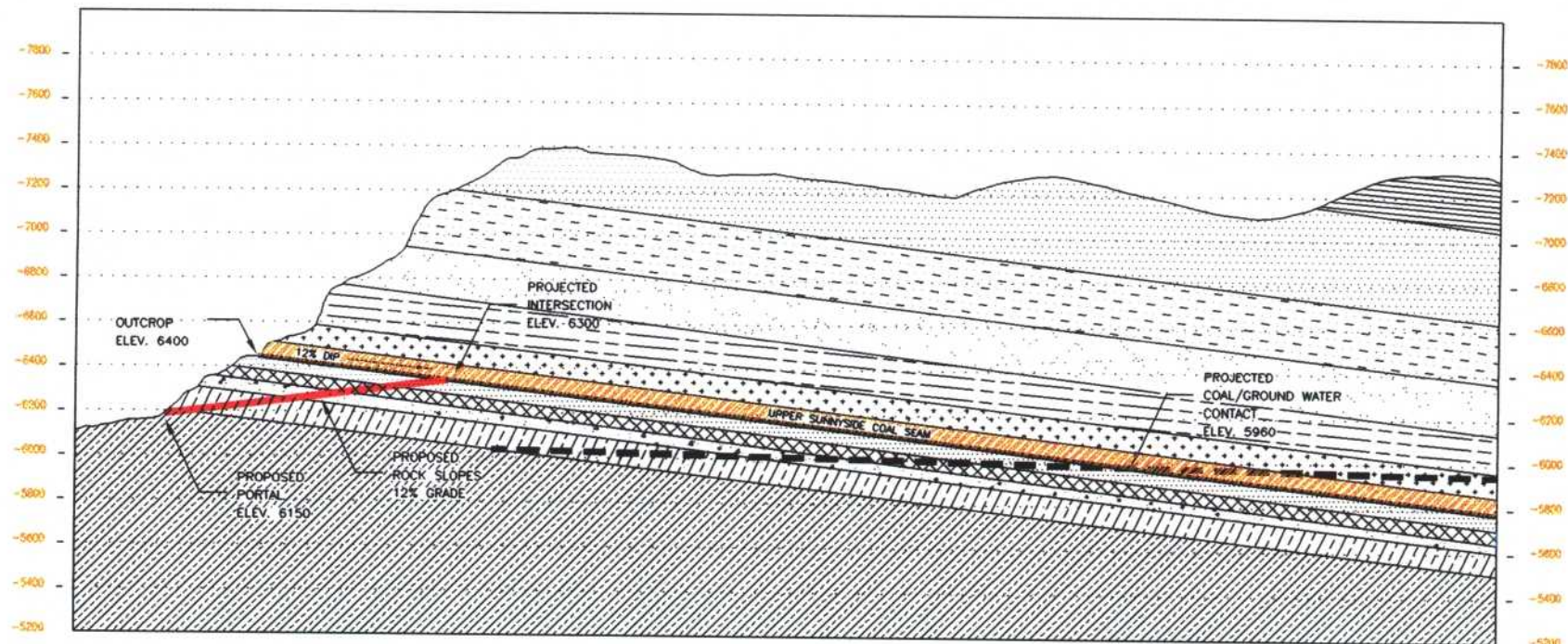
### 3.1 General Setting

Elevations in the area of the proposed action ranges from 5,700 feet to 7,000 feet above sea level and is characterized by hot, dry summers and cold, moist winters. Most of the available water results from winter snow accumulation. Summer precipitation comes from short duration thunderstorms which often result in flooding and erosion (Lines et al, 1984). Characteristic vegetation includes Douglas fir in the highest elevations, pinyon-juniper forests over most of the bench areas, and a mixture of shrubs and grasses in the low areas. The general area is predominantly a natural but disturbed setting, with several dirt roads and routes presumably constructed for grazing and mineral exploration activities meandering through the area.

### 3.2 Geology

Lila Canyon is located within the Colorado Plateau Physiographic Province. The High Plateaus of Utah and the Canyonlands sections meet within the area along the Book Cliffs, an escarpment that extends from Castle Gate east to Grand Junction, Colorado. The project area is characteristic of the mid-elevations of the province, consisting of deep, rugged washes and open plateaus. The geologic structure of the region is controlled predominantly by the uplift of the San Rafael Swell, approximately 25 miles southwest of the project area. Beds are mostly uniform and are inclined from three to eight degrees away from the uplift. The strike of the beds are generally parallel to the face of the cliff. Exposed members of the Price River Formation and Upper Cretaceous Blackhawk Formation are evident in the Lila Canyon Area. The Castlegate Sandstone is approximately 170 feet thick in this area and forms an abrupt cliff over the site. Immediate subsurface geology in Lila Canyon consists of the Upper Mudstone, and Sunnyside Members, with a thin cover of alluvial and colluvial material. FIGURE 3.1 is a typical cross-section of the geology present within the Lila Canyon area.

The majority of coal is located under less than 2,000 feet of cover. The deeper coal is generally located in the northern and eastern portions of the property. A small portion of the reserves are deeper than 2,500 feet. Two coal seams, the Upper Sunnyside and Lower Sunnyside seams, are located in the Blackhawk Formation. Numerous easterly trending normal faults exist within the area. The main faults were mapped by Dunrud and Barnes (1972) and Osterwald and Mayberry (1974). Vertical displacement ranges from 15 feet to more than 275 feet, with displacement diminishing toward the east. Unmapped minor faults may also be present.



**FIGURE 3.1**

**GEOLOGIC CROSS SECTION  
OF LILA CANYON AREA**



### 3.3 Soils

The area of the mine site and transportation corridors encompass steep rocky cliff lands, pediments and basins. The mine site is at the toeslope of the Book Cliffs and has mostly a southwest aspect. In going toward U.S. Highway 191/6 from the mine site, the landscape extends into the Mancos shale basin. Sandstone predominates in the cliff lands with shale dominating in the basin areas. Below the cliffs are deposits of stony to very bouldery colluvium. The pediments are composed of very cobbly to bouldery materials. Nearly all rock fragments are composed of sandstone. Soils are well-drained and surface drainage is limited to runoff events. It is an erosional environment where maintaining soil protection by rock fragments and vegetation is critical to holding soil in place. Soil conditions combined with high intensity, short duration storms create rapid runoff conditions. Runoff has caused extensive natural erosion damage to the landscape.

The soils in the project area have been mapped and described at the third order soil survey intensity level as part of the Soil Survey of the Emery Area, Utah. This soil survey is presently in progress by the USDA, Natural Resources Conservation Service(NRCS), and will be a published soil survey meeting national quality standards. The soils map for the project area is presented in PLATE III. An Order 1 soil survey was completed at the Lila Canyon mine surface facilities site in 1998. The detailed soil survey report is contained within the MRP (On-file). The soil map units identified are those as described by NRCS as of February 1, 1999. Soil map units identified by the NRCS that are within the area are listed below:

*Transportation corridor from the Horse Canyon Road to the mine facilities site:*

<b>BNE2</b>	Strych very bouldery, fine sandy loam, 3 to 20% slopes.
<b>NGG2</b>	Gerst-Strych-Badland Complex, 30 to 70% slopes.
<b>BY</b>	Badland-Rubbleland-Rock Outcrop Complex
<b>BMD</b>	Strych very stony fine sandy loam, 3 to 30% slope
<b>BME2</b>	Strych very stony loam, dry, 3 to 30 % slopes.

*Mine facilities site:*

<b>BNE2</b>	Strych very bouldery, fine sandy loam, 3 to 20% slopes.
<b>BMD</b>	Strych very stony fine sandy loam, 3 to 30% slope
<b>NGG2</b>	Gerst-Strych-Badland Complex, 30 to 70% slopes.
<b>RZH</b>	Rock outcrop-Atchee-Rubbleland Complex, 50 to 80% slopes.

*Transportation corridor from Highway 191/6 to the mine facilities site:*

<b>CHC2</b>	Chipeta silty clay loam, 8 to 15% slopes.
<b>EED2</b>	Hanksville very gravelly, fine sandy loam, 3 to 15% slopes
<b>RIA2</b>	Ravola-Toddler Complex, 1 to 6% slopes
<b>KAC</b>	Persayo-Greybull Complex
<b>SMD2</b>	Clifsand-Minchey Complex 1 to 8% slopes.
<b>BNE2</b>	Strych very bouldery, fine sandy loam, 3 to 20% slopes.

APPENDIX E contains a summary of some of the features of the soil map units.

It has been determined that no prime farmlands or soils of statewide importance are present in the proposed project area (APPENDIX E). Alluvial valley floors are not present in the area based on soil survey information and field observations. Although some soils are formed in alluvium, they are well-drained and lack a high water table typical of alluvial valley floors.

### **3.4 Hydrology**

Hydrologic resources are assessed through examination of existing reports (USGS Open File Report 83-38, Water Supply Paper 2246, and other widely referenced published documents), the Horse Canyon MRP, existing monitoring wells within the vicinity of Lila Canyon, and a historic seep and spring inventories of the proposed mine site and adjacent areas.

#### **3.4.1 Climate**

Lila Canyon receives 18-20 inches of mean annual precipitation, primarily in the form of winter snow and secondarily as late summer rains. This information is from extrapolated isohyets, not direct precipitation measurements. Due to a high (modeled) evaporation rate (18-21 inches) and local geology, Lila Canyon does not have perennial stream surface flow. Runoff from brief intense precipitation events is generally severe.

#### **3.4.2 Surface Water**

Surface channels in the area of study consist of Lila Canyon, which forms the right fork of Grassy Wash. Grassy Wash drains into Marsh Flat Wash, which in turn is tributary to the Price River. The Price River is currently listed as a Clean Water Act 303d (non-compliance) water body for TDS and total suspended solids (TSS), among other parameters. Horse Canyon has a similar surface drainage pattern to the north of Lila Canyon. There are no perennial stream surface flows within the immediate area of the proposed action. However, numerous spring and seep outcrops exist throughout the area. Locations of seeps and springs, based on the existing inventory, are shown on PLATE IV. Within and adjacent to the permit area, 19 springs and seeps were identified in the most recent available inventory. Flows occur from perched local aquifers (North Horn formation) at rock and shale outcrops. The Blackhawk coal formation is classified as a regional aquifer, and is also the source of seeps and springs at lower elevations within the canyons. Flow rates from the springs, as measured for the previous inventory, varied from less than one gallon per minute (gpm) to about 10 gpm.

#### **3.4.3 Ground Water**

In the deeply incised mountainous areas of the Book Cliffs, groundwater is present in consolidated bedrock, in both a regional aquifer (the Blackhawk formation) and in perched local aquifers (the North Horn sandstone). Associated with the bedrock aquifers is groundwater within fractures. Groundwater is also found in shallow alluvial deposits at the bottoms of the larger drainages. Lines and others (1984) indicate that most recharge to the ground water system is due to infiltration of

rainfall and snowmelt at the higher elevations. Another potential factor in groundwater movement is a network of east-west fractures beneath Lila and Horse Canyons. It is presumed that potentially affected formations are presently saturated, therefore no underground water movement through the fractures is currently occurring.

Evaluations by JBR Consultants Group (1986) in the Sunnyside and Horse Canyon areas indicate that the most probable water bearing formations are the Upper Price River and the Flagstaff and North Horn (undifferentiated). Waddell and others (1986) found that the water levels in the North Horn Formation in the Book Cliffs were generally several hundred feet above the regional aquifer potentiometric surface found in the Blackhawk Formation. These North Horn Formation aquifers are considered to be perched.

Groundwater resources in the permit area are limited due to the small surface area and low recharge rates. The local recharge and discharge areas for perched aquifers (North Horn Formation and stratigraphically above) generally lie within the drainage divide of Horse and Lila Canyons. These local systems are complex and highly dependent on topography.

The regional aquifer consists of interspersed sandstone and shale. The aquifer is laterally continuous as a unit but some of the individual sandstone bodies are discontinuous. Three water monitoring wells were drilled in the Lila Canyon Permit area by Intermountain Power Agency (IPA). These wells were designated IPA-1, IPA-2, and IPA-3, and have been monitored for water depth from July 1994 to April 1996. These holes show water levels above the coal seam in those areas. The regional aquifer is underlain by relatively impermeable shale.

UEI is currently in possession of water rights for the industrial use of underground water within the Horse Canyon mine works, which is the same source the proposed works would have. A listing of water rights (taken from the Utah Division of Water Rights database) for the area of the proposed action is included in this EA as APPENDIX F.

### **3.5 Land Use**

Land use resources and surface ownership within the area of the proposed action are shown on PLATE I and PLATE IV.

#### **3.5.1 Grazing**

Two grazing allotments occur within the vicinity of the project area. The existing road, proposed road, proposed power line and mine surface facility would occur within the Cove Allotment. The proposed road would pass near the main watering sources and holding corral for livestock on this allotment. The season of use on the Cove Allotment is during the spring from March 1 to May 31 with 250 head of cattle currently using 750 animal unit months (AUM's). The coal lease area would occur within the Little Park Allotment. This allotment has a summer season of use from May 25 to October 31 with 60 head of cattle using 242 AUM's. (See PLATE IV).

### **3.5.2 Vehicular Traffic**

CR 125, connecting U.S. Highway 191/6 to Horse Canyon and East Carbon, had an annual average daily traffic of 280 vehicles in 1995 (UDOT, 1995). Travel to and from the area of the proposed action would use the Emery County maintained CR 125, for approximately five miles from its intersection with UDOT maintained U.S. Highway 191/6. Access to the Book Cliffs from CR 125 is limited, with traffic on the primary access to Horse Canyon from US Highway 191/6 at 280 vehicles per day. An unmaintained dirt road, which the proposed action would follow closely along the entirety of its length, transects the project area. Access on this dirt road is limited due to weather conditions and maintenance. During inclement weather there are sections that are impassible, and since the road is not maintained on a regular basis, it is virtually inaccessible during late fall through early spring when snow and/or mud preclude conventional vehicles. The heaviest use occurs during the fall in association with hunting, with some additional travel involving grazing, recreational driving, site seeing, and wildlife viewing in the spring and summer.

U.S. Highway 191/6 is a major route for commercial transportation (heavy trucks) between Interstate 70 and the Wasatch Front. South bound traffic normally remains on Interstate 70. It is estimated that more than 5,000 heavy trucks travel between Green River and Price per day. In addition, recreational use has increased to 208 vehicles per hour, thereby creating an overall traffic rate of as many as 10,600 vehicles per day.

### **3.5.3 Visual Resources**

The project area is located in an area of broad open landscapes, broken benches, and steep canyons characteristic of the regional landscape of Southeastern Utah. EXHIBIT 3.1 and 3.2 display views of the characteristic landscape of the project area from Key Observation Points (KOP's) near the intersection of the proposed coal haul road and U.S. Highway 191/6 and CR 125 near the intersection with the existing Lila Canyon Road. From the intersection with the Horse Canyon Road, the existing Lila Canyon Road would proceed south-southeast across a pinyon-juniper bench, before descending a Mancos bench to the proposed mine surface facility site (EXHIBIT 3.1). EXHIBIT 3.2 is a midground view of the proposed area of the coal haul road and a long distance view of the proposed mine site area from U.S. Highway 191/6. The proposed road would proceed east across a bare, gently sloping plain for approximately 7.68 miles to the proposed mine surface facility, located along the broken sloping pinyon-juniper benches below the Book Cliffs. The project area is within an area managed as VRM Class III (objects may be seen, but not dominate the landscape), as established by the Price River MFP.





**EXHIBIT 3.1** View Looking Southeast Along Existing Lila Canyon Road



**EXHIBIT 3.2** View Looking Northeast From U.S. Highway 191/6 (KOP)  
**3.6** Vegetation

### 3.6 Vegetation

The proposed action would traverse several plant communities common to this area of Utah. The intersection of the county road with the existing Lila Canyon Road is located on a gently sloping rocky bench, predominantly covered with pinyon pine, *Pinus edulis* and Utah juniper, *Juniperus osteosperma*. From the intersection with the state road, the county road descends from the rocky bench and transects a steep bare escarpment dominated by shadscale, *Atriplex confertifolia*, mat saltbush, *Atriplex cuneata*, cheatgrass, *Bromus tectorum*, and numerous herbs as groundcover. Within this area of the existing road and proposed surface facility, vegetation was largely burned during a range fire in the early 1950's. The area was reseeded with a nonnative seed mix. However, native species were able to persist, with shrubs and grasses dominated by basin big sage, *Artemisia tridentata*, black sage, *Artemisia nova*, needle-and-thread, *Stipa comata*, and Indian rice grass, *Oryzopsis hymenoides*. From the proposed mine site west to U.S. Highway 191/6, the predominant vegetation gradually changes to a grass shrub community dominated by Indian ricegrass and sagebrush, to a mat saltbush dominated community of the Mancos slopes near the proposed intersection.

As the elevation gradually increases, and water becomes more available, tree species again become prevalent. The remainder of the area consists of a mosaic of habitats beginning with sections of widely spaced Utah juniper. Areas of sagebrush and grass are still scattered throughout but become much smaller as the route enters the area dominated by pinyon pine and Utah juniper. Within Lila Canyon the vegetation changes to a transitional habitat that incorporates the end of the pinyon and juniper range with microsites, moist enough to support Douglas fir, *Pseudotsuga menziesii*, at the top of the ridge.

TABLE 3.2 contains a list of the various plant species identified within the project area. PLATE V shows the location of the various vegetation communities present within the area of the proposed action. APPENDIX G contains a summary of the TES survey conducted for such plants and a negative determination for their occurrence within the area of the proposed action.

**TABLE 3.2**  
**LIST OF PLANT SPECIES IDENTIFIED WITHIN THE PROJECT AREA**

COMMON NAME	SCIENTIFIC NAME
<b>Grasses</b>	
cheatgrass	<i>Bromus tectorum</i>
needle-and-thread	<i>Stipa comata</i>
Indian ricegrass	<i>Oryzopsis hymenoides</i>
wheatgrass	<i>Agropyron</i> spp.
<b>Forbs</b>	
mustard	<i>Brassica</i> spp.
locoweed	<i>Astragalus</i> spp.
cryptantha	<i>Cryptantha jonsia</i>
<b>Shrubs</b>	
greasewood	<i>Sarcobatus vermiculatus</i>
prickly pear	<i>Opuntia</i> spp.
yucca	<i>Yucca</i> spp.
shadscale	<i>Atriplex confertifolia</i>
mat saltbush	<i>Atriplex cuneata</i>
claret cup cactus	<i>Echinocereus triglochidiatus</i>
basin big sagebrush	<i>Artemisia tridentata</i>
black sage	<i>Artemisia nova</i>
<b>Trees</b>	
tamarisk	<i>Tamarix ramosissima</i>
Utah juniper	<i>Juniperus osteosperma</i>
pinyon pine	<i>Pinus edulis</i>

### **3.7 Wilderness Values**

The area of the proposed action is located partially within and adjacent to two wilderness inventory areas, and adjacent to an established BLM Wilderness Study Area (WSA). A portion of the mine surface facility and underground coal lease would be located on the edge of and partially within the Desolation Canyon Inventory Unit 8 of the 1999 BLM Utah Wilderness Inventory. This 48,900 acre unit has been found to have generally retained its natural character. A few road ways associated with coal exploration have been noted, but were determined by the BLM that individually and/or cumulatively did not detract from the overall naturalness of the unit. Opportunities for solitude and unconfined recreation are outstanding, especially when considered in conjunction with the contiguous established 291,000 acre Desolation Canyon WSA. Supplemental values, such as high

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value wildlife and sensitive species habitat have also been found throughout this unit.

The 7,300 acre Turtle Canyon Inventory Unit 4 and small portion of the Turtle Canyon WSA covers the majority of the pre-FLPMA coal lease area. This unit, contiguous to the existing Turtle Canyon WSA, has been determined to have retained its natural character. Outstanding opportunities for solitude and primitive and unconfined recreation exist, due primarily to the extension of the values from the existing WSA. Supplemental values, such as for archeological, scenic, wildlife habitat, and special status plant habitat found within the WSA extend into this inventory unit.

PLATE IV shows the location of the WSA unit and re-inventory units in relation to the general area of the proposed action.

### **3.8 Wildlife**

Wildlife indigenous to the general area of the project include amphibians, reptiles, birds and mammals. General wildlife use of the area is shown on PLATE VI through PLATE IX. APPENDIX G contains correspondence with the U.S. Fish and Wildlife Service (USFWS) regarding the potential of wildlife species concerns within the project area.

#### **3.8.1 Amphibians**

There are six species of amphibians known to occur within the general area of the Wasatch Plateau and Book Cliffs. These species are classified as common, but are limited to mesic areas. These species could be present within the Lila Canyon area, but their occurrence is doubtful due to arid conditions that prevail over the majority of the area. The pinyon/juniper and sagebrush/grass areas that make up most of the affected habitat are not considered important or limiting to their survival (Dalton et al, 1990).

#### **3.8.2 Reptiles**

There are ten species of reptiles known to inhabit the region. The habitat requirements for these species range in value from critical to substantial. The limited acreage of disturbance within the area of the proposed action, however, is not considered a threat to these species. This is due to the abundance of the preferred pinyon and juniper habitat, as well as sagebrush and grass habitat throughout the area.

#### **3.8.3 Birds**

There are approximately 185 bird species that could possibly be either year long residents or frequent the site during portions of the year. Of these, wildlife species of management concern include, loggerhead shrike (BLM Sensitive species) and raptors which will be discussed in-depth.

**Loggerhead shrike** An intensive survey of the proposed action indicated no nesting loggerhead



shrikes, *Lanius ludovicianus*, near the proposed roads or power line ROW's. This species is dependent upon the broad, open sagebrush and grass plain, as well as the presence of widely spaced pinyons and junipers. A summary of the inventory conducted for this species and a negative determination of its presence is attached as APPENDIX G.

**Raptors** Raptor surveys, completed in May of 1998 and 1999 by the UDWR, revealed a number of active and inactive raptor nest sites on the open lower benches and cliff faces in and surrounding Lila Canyon (PLATE VIII). In 1998, one tended and two inactive golden eagles, *Aquila chrysaetos*, nests were located along the cliffs surrounding the Lila Canyon area. Two old, dilapidated historic golden eagle nests were monitored, as well as an inactive prairie falcon, *Falco mexicanus*. The 1999 spring inventory, identified one active and one tended Golden Eagle nest within a 1/4 mile of the proposed mine site. APPENDIX G includes a more detailed description of the survey findings.

An inventory in May and June 1998 for burrowing owls, *Athene cunicularia*, and ferruginous hawks, *Buteo regalis*, did not reveal the presence of these species within the project area.

#### 3.8.4 Mammals

Ninety-two (92) species of mammals are known to exist in, or have the potential to inhabit the region. Of these, the following species of management concern; mule deer, *Odocoileus hemionus*, elk, *Cervus elaphus*, Rocky Mountain Sheep, *Ovis canadensis*, and pronghorn antelope, *Antilocapra americana*, have been identified within the affected area (PLATE VI - PLATE IX).

**Mule deer** Mule deer habitats within the affected area include critical and high priority winter ranges located on the higher elevation benches, as well as year-long range located on the lower elevation foothills below the Book Cliffs. Mule deer population densities within this herd unit are well below management objectives.

**Rocky Mountain elk** Elk high priority winter ranges are found on the higher elevation benches above the mine surface area and lease area. No winter range is located within the area of the mine surface facility or roads. Population levels for elk are at or near management objectives for this herd unit.

**Rocky Mountain bighorn sheep** Rocky Mountain bighorn sheep occupy the cliff talus habitat above the surface facility area. Radio telemetry data collected by the UDWR show that Lila Canyon is particularly important to bighorn sheep and supports as many as 15 to 25 head of bighorn sheep year round. This is attributed to the presence of springs and seeps within the Lila Canyon area of the Book Cliffs, as compared with the noticeable lack of water for most of the cliff talus habitat.

**Pronghorn antelope** Pronghorn antelope occupy the salt desert shrub habitat of the lower elevation ranges along the proposed coal haul road route. This habitat is classified as high priority year-long range for pronghorn. Population levels of pronghorn are at or near management objectives for this herd unit.

### 3.9 Cultural Resources

There is a long and diverse cultural history associated with the Price and Green River Basins and the Book Cliffs region of east-central Utah. Archaeological inventories in the area of the proposed action (Rouch, 1981; Miller, 1991; Montgomery, 1998; Montgomery, 1999), have identified eight archaeological sites and several isolated artifacts. The type and time period of these sites fit well into the cultural overview described above. Seven of the sites are located in Little Park, above the mine's surface facilities. Site 42EM2517, a Fremont component rock shelter is adjacent to and visible from the Lila Canyon Road and the proposed mining facilities.

The site is a south-facing shelter located under a large bolder and measures about eight meters east-west, 5.2 meters high and 1.4 meters deep. It has diagnostic chipped stone tools and Emery Gray ceramic shards associating it with the Fremont Cultural. The still intact cultural remains, in particular, the presence of charcoal and oxidized rocks suggest the presents of features or occupational horizons. It is eligible for the National Register of Historic Places under Criterion (d) of 36CFR60.4, based on its potential for contributing significant data relative to the research domains of the area. Investigations of the site could provide data relative to chronology, site function, technology, subsistence, seasonality of occupation, social organization, and extra regional relationships.

## CHAPTER 4.0 ENVIRONMENTAL CONSEQUENCES

### 4.1 Impacts Associated with Alternative A - No Action

Associated impacts identified with the No Action alternative are derived from the inability to supply the necessary utilities, access and development requirements for the proposed coal mine in Lila Canyon. The proposed facility would need to be abandoned and/or relocated and required to establish some other means of access or transport and an alternative power and utility source. Planned development for the facilities described would not occur.

### 4.2 Impacts Associated with Alternative B - Proposed Action

TABLE 4.1 shows how activities associated with Phase I and Phase II of the proposed action (construction and operation of the proposed roads, power line, development and operation of the mine surface facility, and underground extraction of coal) on federal, state and private lands affect the resources described in CHAPTER 3.0 and as identified during the scoping process.

**TABLE 4.1**  
**AREAS OF IMPACT ASSOCIATED WITH THE PROPOSED ACTION**

<u>Category</u>	<u>Area (acres)</u>	<u>Remarks</u>
Soils	115.11	Construction Disturbance
	93.11	Operational Disturbance
Hydrology	<1.0	Channel Culverts
Grazing	115.11	Construction Disturbance
	93.11	Operational Disturbance
Visual	Minor	Varies From KOP
Vegetation/Habitat	115.11	Construction Disturbance
	93.11	Operational Disturbance
Wilderness Values	7.50	Surface Disturbance within Desolation Canyon Unit 8
	25.12	Indirect Disturbance within Desolation Canyon Unit 8

**TABLE 4.1**  
**AREAS OF IMPACT ASSOCIATED WITH THE PROPOSED ACTION (Continued)**

<u>Category</u>	<u>Area (acres)</u>	<u>Remarks</u>
Wildlife	115.11	Direct Construction Disturbance
	93.11	Direct Operational Disturbance
	0	800 Meter Displacement On Each Side of ROW Corridor (ELK)
	0	200 Meter Displacement On Each Side of ROW Corridor (DEER)
	40.0	Direct Antelope High Priority/Fawning Range Disturbance
	37.0	Direct Bighorn Sheep Habitat Disturbance
	93.11	Direct Operational Raptor Foraging Habitat Disturbance

### **4.3 Geology Impacts**

The proposed upgrade and use of the Lila Canyon road, the new coal haul road, development of the mine surface facility and construction and operation of the power line would not impact geological resources. However, proposed mining activities could potentially result in subsidence impacts within the lease area. The degree and extent of subsidence would depend on mining methods used, height of coal extracted and the amount of overburden present. The average coal height to be mined using room and pillar conventional mining and/or long wall would be approximately 10 feet. Since the majority of the proposed mining would take place under 1,500 to 2,300 feet of cover, subsidence would be low or nonexistent at the surface.

Subsidence monitoring at the now inactive Sunnyside Mine operation demonstrated that subsidence overlying that mine was gradual over a period of seven years and only one third to half of the coal thickness mined. Operators of the mine theorized that major sandstone units in the overlying material act to buffer subsidence effects. They also postulated that the presence of a generally thick overburden serves to dampen subsidence. The proposed action would be mining the same seam and is located in the same geologic formations as the Sunnyside Mine. It is anticipated that the same type and amount of subsidence could occur. However, it is expected that due to the remoteness of the location, no surface facilities or structures would be damaged if subsidence was to occur. No renewable resources would be affected.

#### **4.3.1 Geology Mitigation**

No mitigation is anticipated. Ongoing monitoring of subsidence and a commitment to repair of an subsequent damage is committed by UEI in the Lila Canyon MRP as part of their proposed operation plans.

## 4.4 Soils Impacts

The combined construction impact to soil resources from the proposed action would be 115.11 acres. This figure includes all of the proposed mine surface facility disturbance associated with the required cut and fill slopes. The grading required for construction would displace topsoil and associated horizons throughout the total area of the facility. In association with the pad construction, road upgrading, and the construction of a new haul road, the removal of vegetative cover would result in an increased susceptibility to soil erosion throughout the disturbed sites.

A temporal unquantifiable loss in soil productivity and hydrologic formation could occur on the sites occupied by mine facilities and transportation systems during the life of the mining project. Upon reclamation, the area would be returned to approximate neutral conditions, with soil functioning being a major consideration.

Since no grading would be required, the acreage of potential construction impact to soil resources by the establishment of the power line has been calculated to be 10 percent of the ROW. With the construction ROW acreage, shared staging area, pull sites and switching station, disturbance to soils would be less than a half acre. Within the proposed power line ROW, surface disturbance to soil resources at specific pole sites would be minimal (less than 0.01 acres). A temporary impact to soil could occur within the ROW where construction vehicles would compact topsoil layers by gaining access within the ROW for pull sites and the switching station.

An approximate 0.05 acre area of compaction to soils around the livestock water tank proposed would occur due to increased use of the area by livestock. This could result in an unquantified loss of soils due to wind and water erosion. However, since the tank would be located on a portion of an existing disturbed, but retired route that has been heavily compacted by past vehicular use, this potential loss would be minimal. An unquantifiable increase in dissolved solids and salts in the soils could result from runoff from the road surface and from coal fines blowing off haul trucks. No impact to soils present within the area of the mineral lease area are expected.

### 4.4.1 Soil Mitigation

No mitigation is anticipated. Since UDOGM, in coordination with OSM, would have primacy over the mine site, soil management standards as defined and addressed within the MRP would be followed. BLM standards and requirements for soil handling, protection, and management would be followed to avoid impacts to the soil resources along the coal haul road and outside of the mine site permit area. The actions taken as required by the responsible agencies (UDOGM, OSM, and BLM) would minimize the extent of erosional impacts and eliminate the need for mitigation of impacts. As part of the operation plan for the mine facility, topsoil would be salvaged from construction areas and stockpiled for use during final reclamation. Erosion control and revegetation measures would be applied to protect stockpiled soil materials as discussed within the stabilization and maintenance plan. As discussed within the MRP, prior to any revegetation, soils would be tested and fertilizer or other soil amendments would be added as appropriate. As discussed in the

reclamation plan, soil would be loosened by ripping where soil compaction could limit plant growth. As discussed within the SPCC Plan, any soils contaminated by oil, gas, or other substances, would be disposed of or treated to correct the problem.

## **4.5 Hydrology Impacts**

Any reduction of surface vegetation during the first three years of the project (24 month construction time frame and 36 month revegetation establishment) would decrease infiltration and increase surface runoff. This could contribute to the previously mention soil erosion and downstream sediment loading. Sheet erosion would increase and water quality could be affected by greater sediment loading. However, due to the sparsity of natural vegetation, changes resulting from vegetation reduction are expected to be relatively minor. Of greater concern are changes to flow patterns resulting from the construction of roadway and surface facilities.

Springs could be altered from land subsidence resulting from underground mining. This could effectively change the current hydrological regime, thus altering vegetation community structure and area wildlife use. In the event important water sources are lost or reduced, the proponent is obligated by regulation to replace it. Mine dewatering could augment surface flows to the existing channels. These channels could undergo channel dimension alterations, causing increased bank erosion. Artificial riparian areas could develop as a result of more consistently available water. Any flows allowed to reach the Price River may constitute an unquantifiable source of TDS/TSS loading, due to the saline soils and increased erosion to channel banks.

### **4.5.1 Hydrology Mitigation**

The impacts described for the proposed action are minimized through UDOGM, OSM and BLM regulatory requirement currently in effect. A complete Sedimentation and Drainage Control Plan to control and contain off-site discharge of water from the mine site as required by UDOGM and OSM, is included in the MRP. The proposed sediment storage facilities (PLATE II-A), as described in the MRP and as required by UNPDES regulatory requirements would control and minimize off-site transport on sediments to downstream resources. Maintenance of these facilities would be for the life the mining operation and until final reclamation has been completed. BLM Class III road standards and guidelines for hydrologic modifications for access roads are specifically designed to minimize effects from such changes. These would be included as stipulations to approval of this action. Site specific conditions associated with drainage crossings and sediment controls are further addressed by Class III Road Standards and Price Field Office Hydrologic Modification Standards for Roads. Since UEI has proposed a substitute or replacement water sources (i.e., rainfall catchment guzzlers), the impact to nearby springs for wildlife use would be minimized.

## **4.6 Land Use Impacts**

### **4.6.1 Grazing**

Livestock would be allowed on the allotments described, but excluded from 115.11 acres associated with the active work areas during the two year construction time frame. Upon operation activities, livestock would be precluded during the life of the project on 93.11 acres associated with the proposed surface facility area and operational ROW of the coal haul road. The Cove Allotment would be effectively split by the operation of the road and bordering fences, thus potentially altering the future utilization of the allotment. No reduction of current AUM numbers are anticipated. No range resources, improvements and/or management facilities would be directly impacted by the proposed action on the Little Park Allotment .

### **4.6.2 Grazing Mitigation**

Actions taken by UEI as part of the Stabilization, Maintenance and Operation Plan, discussed in CHAPTER 2.0 would minimize impacts to grazing resources, thus eliminating the need for mitigation. The construction of the fence along the coal haul road would eliminate the potential of vehicular collisions with livestock during the life of the operation. To maintain the current utilization of the Cove Allotment, a 12,000 gallon water tank would be installed and maintained by UEI for the life of the project. The establishment of a water tank on the northern side of the road and a retired portion of the existing route would allow for livestock use within this area of the allotment while minimizing the overall impact to current grazing management. Forage produced by the reclamation of retired routes and roads would increase the use made by cattle in those areas. As discussed previously, UEI would also maintain and/or replace all range improvements which would be affected during construction and operation (ponds, fencing, cattle guards, corrals, etc.).

### **4.6.3 Vehicular Traffic Impacts**

Construction crews associated with the development of the proposed action would travel to and from the work site via U.S. Highway 191/6 and CR 125. During construction of the proposed road approximately 30 people would be employed. Construction of the power line in the second year of construction could employ as many as 20 people. UEI would employ as many as 30 people during the construction of the mine surface facility. This added traffic would have minimal impacts based on the relatively short construction schedule of approximately 180 days over the two year time frame.

Operational impacts are associated with transport and production of an estimated 2.5 million tons of coal a year during Phase I. This number is based on UEI's proposal in the Resource Recovery and Protection Plan submitted to the BLM in December 1998. Vehicular use would include the personnel associated with the mine, delivery of material to the mine, and the transport of the coal via the proposed road to U.S. Highway 191/6 and the loadout site on the Ridge Road near Wellington. UEI has indicated that at full capacity after five years, as many as 315 coal haul trucks

per day would travel from the proposed mine, through Wellington, and onto the loadout site on Ridge Road off U.S. Highway 191/6. This additional volume of traffic, as well as the increase in traffic resulting from as many as 63 mine employees and support traffic, would result in a 3.5 percent daily increase along this 35 mile section of the highway. The potential for an unquantifiable increase in vehicle-vehicle accidents, as well, could increase as a result of this potential traffic volume. Traffic resulting from Phase II development has been estimated at 550 vehicles (staff and coal haulage) per day at full production of four million tons of coal. This would result in a 5.2 percent increase in traffic volume based on the current use of the road (10,600 vehicles per day).

#### **4.6.4 Vehicular Traffic Mitigation**

No mitigation has been identified. To minimize congestion impacts of the proposed merging haul road, the proposed action includes the construction of an acceleration and turning deceleration lane from U.S. Highway 191/6. Caution signs, and warning signs would be established along the highway and prior to the intersection of the proposed haul road.

#### **4.6.5 Visual Resources Impacts**

Effects to visual resources were assessed for the construction, operation, and closure of the proposed action. Two issues were addressed in determining impacts: 1) the type and extent of actual physical contrast resulting from the proposed action and related activities to existing conditions; and 2) the level of visibility. The majority of the existing Lila Canyon Road is situated along the base of foothills below the southern edge of Horse Canyon Bench. Visual contrast of the road is reduced due to topography and vegetation screening.

U.S. Highway 191/6 would be the KOP for the lower portion of the proposed road and mine surface facility. Road cuts created by the realignment of the new road would be evident from a short distance, but should not have a long range physical contrast. Since the mine surface facility would be located within the narrow Lila Canyon, visibility of the facility from any KOP would be minimal. However, the surface facilities when lighted at night would be visible from numerous points along U.S. Highway 191/6 and to a lesser degree a "glow" may be in evidence from U.S. Highway 10 between Price and Huntington.

The visual impacts of the power line would be an increase in contrast to the surrounding landscape. However, since minimal vegetation removal would be required, physical contrast over the area of the power line would be minimal and not visible from a KOP.

#### **4.6.6 Visual Resource Mitigation**

No visual resource mitigation has been identified. Actions taken as part of the Stabilization, Maintenance and Operation Plan in CHAPTER 2.0 would meet the established VRM standards.



## **4.7 Vegetation Impact**

The vegetation disturbed by the proposed action is shown in TABLE 4.2. As previously discussed, the area of the proposed action construction could compromise as much as 115.11 acres. Vegetation and habitats impacted are not limiting nor specific to the project area. Therefore, the acreage of impact would not affect the health of the local community structure. Vegetation bordering the existing road would be eliminated in most cases to minimize the potential for vehicle-wildlife incidents. Vegetation within Lila Canyon would be eliminated or temporarily impacted (three years) by construction and operation of the proposed road, power line and mine. Vegetation within 35 acres of the 39 acre mine surface facility would be removed for the life of the operation.

Impact to vegetation populations away from the road and mine site would be minimal, and limited to activities associated with construction of the power line. Vehicular travel along the power line ROW may flatten and crush ground cover. No impact to the sagebrush-grass habitat is expected. Disturbance to reclaimed areas would be temporal, from 24 to 36 months, and/or until vegetation becomes fully established. Upon reclamation of the road cuts and unused portions of the mine surface facility, operational impacts to vegetation would be minimized to 93.11 acres. This life of project acreage would encompass the 50 foot ROW of the road, mine surface area, and power line facilities. No impact to vegetation resources is expected from the proposed underground mining activities.

### **4.7.1 Vegetation Mitigation**

No mitigation is anticipated. Activities proposed as part of the proposed action should effectively minimize all impacts to vegetation resources. All disturbed areas not needed for operations would be revegetated during the first available growing season. A commitment to reclaim all areas at the conclusion of mining is made in the Lila Canyon MRP and a reclamation bond would be held in force until all disturbance has been satisfactorily reclaimed.

**TABLE 4.2**  
**HABITAT DISTURBANCE ASSOCIATED WITH THE PROPOSED ACTION**

	<u>Habitat Type</u>	<u>Construction(Acres)</u>	<u>Operation (Acres)</u>
<b>Lila Canyon Road:</b>			
	Sagebrush-Grass	17.23	13.23
	Pinyon-Juniper	3.74	3.74
<b>Road:</b>			
	Sagebrush-Grass	41.30	31.11
	Pinyon-Juniper	11.11	8.77
<b>Power Line *:</b>			
	Sagebrush-Grass	1.22	0.98
	Pinyon-Juniper	0.35	0.28
<b>Mine Surface Facility:</b>			
	Pinyon-Juniper	19.00	16.40
	Grass/Brush	21.16	18.60
<b>TOTAL ACREAGE</b>		<b>115.11</b>	<b>93.11</b>

**\* Disturbance Determined as 10 Percent of Power Line ROW**

#### **4.8 Wilderness Values**

Surface facilities associated with the proposed mine site and guzzlers would directly disturb eight acres of the natural wilderness value and future designation of the immediate areas as Wilderness within the Desolation Canyon Inventory Unit 8. Since the proposed mine site would be adjacent to the inventory unit, opportunities for solitude and primitive/unconfined recreation would be indirectly degraded by sight and sound during the 20 year life of the mine. However, due to topography, the indirect area of impact would be restricted 25.12 acres below the canyon face.

Noise from the operation of the surface facility and increased vehicular travel from the proposed road would indirectly diminish the quality of the opportunities for solitude and primitive recreation along a portion of the Book Cliffs face area at the western boundary of the inventory unit, but would have little impact within the rest of the inventory unit with wilderness characteristics. No impact to wilderness quality and values would occur above the canyon from the location and operation of the mine facility.

Approximately 901 acres of the Desolation Canyon Inventory Unit 8 would be undermined by underground coal extraction. Naturalness, opportunities for solitude and primitive/unconfined recreation and cumulative values would not be diminished nor degraded by the proposed underground mining due to the substantial cover anticipated (at least 1,500 feet). Subsidiary surface disturbing actions resulting from surface subsidence may occur, but would not appear different from

the surrounding geology.

The Turtle Canyon Inventory Unit 4 and the Turtle Canyon WSA would not be directly impacted by surface disturbing activities associated with the proposed action. Naturalness, opportunities for solitude and primitive/unconfined recreation and supplemental values would not be degraded. Subsidiary surface disturbing actions resulting from surface subsidence may occur within these areas as well, but would not appear different from the surrounding geology.

#### **4.8.1 Wilderness Values Mitigation**

The proposed action meets the Wilderness Interim Management Plan (IMP) objectives. No action is proposed that would impair the wilderness character of the established WSA. Therefore, no mitigation is proposed for the development of the mine surface facility area, or indirect impacts associated with its operation and use of the proposed road for the re-inventory units. However, the incorporation of the original IMP stipulations for actions resulting from mining of the pre-FLPMA coal leases under the Turtle Canyon WSA would be incorporated for all areas deemed to be affected by subsurface actions.

#### **4.9 Wildlife Value Impacts**

The primary concerns relative to wildlife within the area of the proposed action are:

1. Direct impacts which include surface disturbance resulting in loss of habitat, key habitat components and/or direct mortality to wildlife;
2. Indirect impacts which result is loss of habitat suitability resulting from intrusion of human presence and activity within sensitive wildlife habitats.

Direct impacts of the proposed action include surface disturbance required for facility construction, potential disruption of springs and seeps from underground mining activity, and direct mortality associated with subsequent coal haul traffic. Indirect impacts of the proposed action include human related intrusions/disturbances into wildlife habitats which can cause loss of habitat suitability. Human related intrusions/disturbances include human presence, equipment operation, and construction activity. These intrusions can in turn result in reductions in use of habitat by wildlife and changes in distribution and movement patterns by wildlife. Loss of habitat suitability becomes particularly important when it affects habitats of species known to be sensitive to such intrusions or occurs during critical periods of the year when wildlife are more vulnerable to these adverse impacts (i.e., fawning, lambing, critical winter range, nesting).

**Mule deer** Direct surface disturbance associated with operation of the proposed action would affect approximately 93.11 acres of mule deer year-long range. Since mule deer year-long range supports relatively low population densities, this loss of habitat is not expected to have any

noticeable effect on numbers or distribution patterns for this species. Potential de-watering of springs and seeps could adversely effect high priority and critical winter range for mule deer. Distribution of mule deer on these winter ranges could be affected, particularly in years with light snow conditions and during the early and late winter periods when snow is absent. Coal haul and related traffic to the mine facility would potentially affect mule deer year-long range. Mule deer densities on year-long range are extremely low. For this reason, mortality related to vehicle collisions would be rare and should not affect mule deer populations. Mule deer are vulnerable to disturbances of human activity when concentrated on winter ranges and animal physical conditions are depleted. Indirect impacts of the proposed action would only affect mule deer year-long ranges and therefore should have little effect on mule deer.

**Elk** No direct surface disturbing activity would occur on elk habitats within the affected area. Potential de-watering of springs and seeps could occur on elk high priority winter range. As discussed for mule deer, distribution of elk on these winter ranges could be affected, particularly in years with light snow conditions and during the early and late winter periods when snow is absent. Mortality associated with coal haul and related vehicle traffic would have no adverse effect on elk, since the access routes do not go through elk habitat.

Elk, as with mule deer are vulnerable to disturbances of human activity when concentrated on winter ranges and animal physical conditions are depleted. No indirect impacts would affect elk winter ranges and therefore should have no adverse effect on elk.

**Pronghorn** Direct surface disturbance would affect approximately 40 acres of pronghorn high priority year-long range. As discussed for mule deer year-long range, pronghorn high priority year-long ranges support relatively low population densities. This loss of habitat is not expected to have any noticeable effect on numbers or distribution patterns for pronghorn. Potential de-watering of springs and seeps that could occur as a result of mining activity would not occur on pronghorn range and therefore would not affect pronghorn. Though difficult to quantify, direct mortality of pronghorn, as a result of coal haul and related traffic, could occur. However, since the proposed coal haul traffic would not go through habitats in which pronghorn are concentrated, vehicle collisions would be rare and have little effect on population levels.

Pronghorn are sensitive to human intrusion during the fawning season, May 15 to June 20. The proposed action includes a seasonal constraint on construction activity during the fawning period. Therefore, no adverse effect would occur during this phase of the project. However, coal haul traffic would occur during this period of time for the operational life of the facility and could affect pronghorn to some degree. Pronghorn fawning is not concentrated in any one area but rather widely dispersed throughout their high priority range. For this reason, indirect disturbances to pronghorn during the fawning season are not expected to adversely effect the population.

**Rocky Mountain bighorn sheep** Direct surface disturbance would affect approximately 37 acres of bighorn sheep habitat. The Lila Canyon area is considered to be a relatively high concentration area for bighorn sheep. This is attributed to the presence of springs and seeps along the cliff-talus habitat within Lila Canyon, as well as, the relative absence of water in most cliff-talus habitat areas.

The surface disturbance alone or loss of forage on this disturbed area should have little effect on bighorn sheep. However, the potential de-watering of springs and seeps, a key habitat component for bighorn sheep, as a result of the proposed action could directly affect bighorn sheep continued use of the Lila Canyon area. This impact could displace up to 25 bighorn sheep. The proposed guzzlers would avoid this impact. Mortality associated with coal haul and related traffic represent very little risk to bighorn sheep, since very little of the road system goes through bighorn habitat.

Bighorn are sensitive to human intrusion, particularly during the lambing season, May 1 to June 15. A seasonal restriction on construction activity in bighorn sheep habitat during the lambing season would avoid this adverse impact. Since this restriction has been incorporated into the Stabilization, Operation and Maintenance Plan, no adverse effect would occur during the construction phase of the project. However, operations at the facility would occur during this period of time for the operational life of the facility and could affect bighorn to some degree. These disturbances would be expected to displace bighorn sheep from the immediate area surrounding the facilities.

**Raptors** Direct operational surface disturbance would affect approximately 93.11 acres of raptor foraging habitat. This loss in itself is not expected to adversely effect raptors. Likewise, potential de-watering of springs and seeps could have some effect on availability of prey species, but is not expected to affect raptors to any great degree.

Raptors are known to be sensitive to human intrusion during the nesting cycle. Disturbances during this period of time can cause birds to abandon their nesting territories or disrupt adults tending the young in the nest resulting in mortality of young in the nest. Indirect impacts to raptors and in particular, the nesting territories within 0.5 miles of the facility location, would likely be adversely affected by the proposed action.

The 1999 spring inventory, identified one active and one tended Golden Eagle nest within a quarter mile of the proposed mine site, informal consultation between USFWS; UDWR, and BLM was initiated to devise a course of action and potential mitigation. Due to the nests close proximity to the proposed mine (approximately 800 feet), it was felt that the nest sites would be abandoned for the life of the operation. Planning guidelines outlined in the MFP give specific direction to protect the continued productivity to raptor nest sites.

#### **4.9.1 Wildlife Values Mitigation**

No additional mitigation is proposed for impacts associated with the proposed action. Potential impacts to all wildlife use (especially bighorn lambing) associated with construction, would be minimized with a seasonal closure. The proposed fence along the coal haul road would be constructed to allow for wildlife (antelope) movement, and therefore, would not prohibit range use. Potential loss of springs and seeps which could adversely affect most wildlife species present (particularly bighorn sheep) has been addressed by the proposed guzzlers. The proposed guzzlers would eliminate long term impacts to area wildlife, especially bighorn sheep, from human intrusion over the life of the mine.

Adverse impacts to raptors would be avoided with a seasonal restriction and prohibiting construction activity within 0.5 miles of occupied nest sites from February 1 to July 15. Impacts associated with mining operation for the life of the mine that could adversely effect continued productivity of the nest sites would be minimized by the proposed 93 acre vegetation treatment. On similar projects, construction of artificial nests have been attempted to mitigate a similar type impact with varying degrees of success. Since a vast amount of suitable cliff nesting substrate would be available for nesting pairs to construct new nests, UDWR and USFWS suggested to increase prey populations rather than an artificial nest replacement. Based on these informal consultations, the vegetation treatment project designed to increase small mammal populations was identified as suitable to offset impacts to affected raptor nests.

#### **4.10 Cultural Resources Impacts**

Rauch (1981) has identified potential impacts of coal mining in this area as: 1) impacts from construction activities. 2) subsidence damage resulting from underground mining. 3) vandalism to site near mine roads and others facilities. Most of the areas of proposed constructions have been inventoried for cultural resources (Mongomery, 1998: Montgomery, 1999) and no cultural resource should be directly affected by construction.

On the effects of subsidence to cultural resources Rauch(1981) says:

“Given the amount of acreage sampled and the type and density of sites recorded and expected as an extrapolation of this sample to the entire area, it seems reasonable that if slumping or crackage does occur, the probability of these occurrences falling within site boundaries should be considered as low. Subsequently, even if limited disturbance does occur, the sites are of a nature (e.g., no structures or cultural depth) that their integrity should not be irreparably damaged.”

Vandalism is an indirect impact of the coal mine development. Sites in close proximity to access routes and mine facilities would be affected by the loss of integrity to information and artifacts of the sites. Since 42EM2517 is adjacent to and visible from both a access route and the mines facilities it would be effected. Because cultural resources are not always visible, it is possible that unknown resources may be uncovered during construction.

##### **4.10.1 Cultural Value Mitigation**

UEI shall submit to the BLM, a data recovery plan for 42EM2517. In order to approve this plan the BLM will have to enter into a Programmatic Agreement with the Utah State Historic Preservation Office and possible other consulting parties. The Programmatic Agreement must be signed and the plan approved before the right-of-way is authorized. UEI shall implement the approved plan.

## **5.0 ANALYSIS OF CUMULATIVE IMPACTS**

### **5.1 Issues and Resources Cumulatively Impacted**

A cumulative impact, as defined within 40 CFR 1508.7, is the impact on the environment which results from the incremental impact of the action (proposed action) when added to other past, present and feasibly foreseeable future actions. To assess the cumulative impacts of the proposed action, it is necessary to identify those components of environment that could be affected that were not minimized by actions taken as part of the proposed action scenario or mitigated upon review of direct and indirect impacts of the proposed action. Specific issues raised during scoping formed the basis of review of cumulative impacts.

#### **5.1.1 Surface Impacts Resulting From Mine Induced Subsidence**

Mining activities described as part of Phase I and Phase II, though possible over a larger area of the described lease area, would not result in any more subsidence than what was indicated for the direct and indirect impacts of the proposed action. Mining actions initiated as part of the development of the proposed action would not result in any cumulative impacts to any resource.

#### **5.1.2 Soils and Reclamation Potential**

Development of the coal lease area through Phase II would not result in any other additional disturbance to described resources. Actions taken as part of the permit stipulations, Stabilization, Operation and Maintenance Plan for the proposed action and reclamation plan associated with the mine and mine surface facility have eliminated the need for mitigation of direct and indirect impacts, as well as area wide cumulative impacts.

#### **5.1.3 Ground Water and Surface Water Hydrology**

Mitigation required for possible impacts to hydrology and regional water quality of the Colorado River Basin and proposed operational stipulations would minimize the cumulative impacts to this resource throughout the Phase I and Phase II development.

#### **5.1.4 Livestock Grazing**

Actions taken as part of the proposed action have minimized all direct and indirect impacts to this resource. No cumulative impacts are expected throughout the Phase I and Phase II development.

#### **5.1.5 Vehicular Traffic**

This resource will be analyzed for cumulative impacts.

#### **5.1.6 Visual Resources**

Actions taken as part of the proposed action to minimize direct and indirect impacts would also minimize cumulative impacts during the Phase I and Phase II development.

#### **5.1.7 Loss of Vegetation Diversity, Cover and Productivity**

Interim and final reclamation of the proposed action as described would not change for the area of disturbance analyzed for Phase I to Phase II. The actions taken to minimize or eliminate such direct and indirect impacts would minimize the cumulative impacts during the phased development and after full reclamation.

#### **5.1.8 Wilderness Values**

Development of the lease area described could constitute additional surface disturbance during the proposed life of the project. Exploration drilling could be required during the operation of the underground mine to develop the future mining of the leases identified. Therefore, this value will be analyzed for cumulative impacts.

#### **5.1.9 Displacement and Direct Disturbance of Wildlife**

Mitigation proposed to address the direct and indirect impacts to wildlife resources within the area of the proposed action would minimize all impacts to this resource through Phase II. However, development of future actions within the vicinity of the proposed action would necessitate the review of cumulative impacts to this resource.

### **5.2 Past, Present and Reasonably Foreseeable Actions Within the Area**

#### **5.2.1 Exploration Drilling Associated with the Lila Canyon Project**

To allow for future modifications to the underground mining of the coal leases described, it may be necessary to conduct exploratory core drilling and sampling to determine mineable resources. Though the regional coal geology for the lease area is known, as many as five 0.75 acre sites (3.75 acres total) could be developed over the course of operations. Since the surface area overlying the underground coal resources is currently cherry-stemmed with an existing network of roads and routes, potential drilling actions could be accessed and conducted within these transportation corridors over the entire lease area. Initiated within a three month summer field season, temporary exploratory drilling would most likely entail a rotary drill rig drilling on a 24 hour basis for up to 10 days. Water for use during drilling would be trucked to the site via the existing transportation system. Upon completion of drilling and sampling actions, the site would be reclaimed and revegetated to UDOGM and BLM requirements.



No new surface access would be anticipated within the re-inventory units or existing Turtle Canyon WSA. No permanent surface disturbance outside of the current cherry-stemmed transportation system would be anticipated.

### **5.2.2 Development of the Blue Castle Mine**

Reasonably foreseeable minerals development in the area consists of the establishment an extraction mine and facility by Gold Terra Incorporated. The proposed development of the Blue Castle Mine would extract gold from the Mancos Shale benches adjacent to the Lila Canyon project area in the east half of Section 29 in T. 16 S. R. 14 E. Surface disturbance anticipated for this project is 132.57 acres. The primary access to this site would utilize the proposed Lila Canyon project coal haul road, with upgrading of existing access roads and routes and creation of new roads within the gold mine area. These existing and new roads would be within the 132.57 acre disturbance proposed for this cumulative development scenario. As many as 85 vehicles would access the site each day during the 20 year life of the mine.

### **5.2.3 Regional Traffic**

The existing road system to be utilized through the operation of the Lila Canyon project is also utilized by two operating coal mines and a substantial volume of commercial and commuter traffic. U.S. Highway 191/6, currently at an estimated 10,600 non-coal related vehicles per day, is a heavily traveled route between the Wasatch Front and Interstate 70. Traffic from the proposed Lila Canyon project has been estimated at 550 vehicles (staff and coal haulage) per day at full production of four million tons of coal during Phase II. Traffic from similar nearby actions includes the West Ridge, Dugout Mines at 400 and 343 vehicles per day respectively. The proposed Blue Castle Mine would have approximately 85 vehicles per day that would merge on to the proposed coal haul road before entering U.S. Highway 191/6.

## **5.3 Cumulative Affects on Identified Resources**

### **5.3.1 Exploratory Drilling**

Since the potential of exploratory drilling required to delineate mining of the pre-FLPMA leases would most like occur within the cherry-stemmed road that transects the area (PLATE IV), direct and indirect impact to resources would be minimal. Impact to soils, vegetation, cultural resources, land uses, and wildlife would be minimized due to timing of activities (summer), the location within disturbed road corridors, and stipulations as part of UDOGM and BLM permits for erosion control, protection of resource values, reclamation and revegetation.

Though potential drilling actions as described would not directly impact wilderness character of the surface area, indirect impacts associated with the operation of the Lila Canyon Mine and potential exploratory drilling and sampling of the pre-FLPMA coal leases could affect the wilderness values

of the re-inventory units present. Though the potential drilling could occur within the cherry-stemmed road system that transects the coal leases, naturalness and opportunities for solitude would be diminished on those areas adjacent to the drill site locations during the 10 day drilling schedule for each road site. In combination with the indirect impacts occurring as discussed for the surface operations associated with the Lila Canyon Mine, a cumulative impact to wilderness character (naturalness and solitude) and manageability of these portions of the overlying Desolation Canyon Unit 8 and Turtle Canyon Unit 4 could occur. The overall wilderness value of the area from the mine site to the cherry-stemmed transportation corridor could be diminished during the temporary three month exploration program.

### **5.3.2 Vehicular Traffic**

Cumulatively, the traffic from the present ongoing actions (West Ridge and Dugout Mines) in association with the proposed full Phase II development traffic of the proposed action would result in a 12 percent increase in commuter and heavy truck traffic over the next 20 years on U.S. Highway 191/6. In the event that the Gold Terra project is developed, the traffic volume would increase slightly to 13 percent over the next 20 years. These figures are based upon the estimated current highway use of 10,600 vehicles per day. However, use of this highway by commuter and commercial traffic is believed to be increasing at an un-quantified rate. Therefore, current impacts on traffic volumes may not be valid during the course of operation of these ongoing and foreseeable actions.

Regardless of the increase in commuter and commercial traffic volume on the highway, the potential cumulative increase of these projects would directly impact the safety and manageability of this transportation route. The rate of incidence of vehicular accidents could potentially increase, especially with the additional heavy truck traffic associated with the present facilities and future actions proposed. Additional highway costs for repairs required by the added heavy truck traffic would also be incurred during the anticipated cumulative life of these projects. Present and future highway management decisions for the proposed use of this state and federal highway should take into consideration the increase of commuter and commercial traffic in relation to these actions.

Cumulative impacts to wildlife within the immediate and transport area would also occur as a result of vehicular traffic. These impacts are discussed in the next section.

### **5.3.3 Displacement and Direct Disturbance of Wildlife**

The operation of the proposed action in association with the reasonable and foreseeable development of the 133 acre Blue Castle Mine would cumulatively and directly impact wildlife within the immediate vicinity of the project. As discussed within CHAPTER 4.0, direct and indirect impacts to big game use resulting from the operation of the coal haul road were minimal due to the low densities of mule deer and antelope and lack of critical habitat. However, with the future development of the Blue Castle Mine and subsequent surface disturbance, direct disruption of mule deer and antelope year long habitat would occur. This unquantified disruption could result in the cumulative indirect impact of displacement of wildlife due to the combined operation of

these two projects in close proximity. Future wildlife resource management decisions would need to take the potential full operational impacts into account in order to an adequate herd management plan.

Vehicular traffic impacts on these big game species and raptors could occur as well. An increase in traffic volume on the proposed coal haul road by the potential Gold Terra action could result in an increase in vehicular-wildlife incidents over time. Indirectly, the potential movement of wildlife and habitat use by raptors could be further restricted and displaced. The use of U.S. Highway 191/6 and subsequent site access roads for the described cumulative scenarios would be impacted in a similar manner. Future land use decisions should take into account this cumulative scenario impact to develop a mitigation for the related direct disturbance and indirect displacement impacts on wildlife that result from increased vehicular use.

## **CHAPTER 6.0 CONSULTATION AND COORDINATION**

### **6.1 Agencies, Organizations and Individuals Contacted**

Numerous contacts with associated land use agencies, interested parties and individuals have been made during the course of this environmental assessment. The input from meetings, briefings and conversations during the months of February 1998 through June 2000 has resulted in the completion of this third party prepared (EIS) interagency (BLM/OSM) document. A list of specific individuals contacted is listed under references.

#### **6.1.1 Federal Government/Agencies**

- U.S. Department of Agriculture
  - a. Natural Resource Conservation Service - Soil Resources
- U.S. Department of the Interior
  - a. U.S. Fish and Wildlife Service - Threatened and Endangered Species and Raptors

#### **6.1.2 State of Utah**

- Department of Community and Economic Development
  - a. State Historical Preservation Office - Cultural Resources
- Department of Natural Resources
  - a. Division of Oil, Gas and Mining - Mine Plan and Resource Analysis
  - b. Division of Water Rights - Water Rights
  - c. Division of Wildlife Resources - Wildlife Resources
- Department of Transportation - Road Crossings and Traffic
- Office of Rehabilitation
  - a. School and Institutional Trust Lands Administration - State Land Easements

#### **6.1.3 Local Governments and Organizations**

- Emery County Recorder - Land Use and Resource Analysis
- Emery County Planning and Zoning - Land Use and Zoning
- Emery County Road Department - Road Design and Proposed Action
- Emery County Engineer - Road Design
- Emery County Commissioners - Land Use and Easements

#### 6.1.4 Industry and Business

- Bear West Company; Salt Lake City, UT - Legal Review and NEPA Compliance
- Blackhawk Engineering; Price, UT - Proposed Action Design
- Montgomery Archeological Consultants; Moab, UT - Cultural Resources
- Intermountain Power Agency; Los Angeles, CA - Property Ownership
- Talon Resources; Price, UT - Proposed Action Design
- U.S. West; Salt Lake City, UT - Proposed Action Design
- UtahAmerican Energy, Inc; Price, UT - Proposed Action
- Utah Power & Light; Salt Lake City, UT - Proposed Action Design

#### 6.2 List of Preparers and Interdisciplinary Team

##### 6.2.1 EIS Environmental & Engineering Consulting (EIS); Helper, Utah

- **Melvin Coonrod**                      **Project Manager and Coordinator, Wildlife, Vegetation, Construction and Operations, Reclamation**  
B.S. Chemistry and Invertebrate Zoology  
M.S. Silviculture
- **Carl East**                              **Wildlife and Vegetation**  
B.S. Wildlife Management
- **Dan Larsen**                            **Soils**  
B.S. Conservation of Natural Resources  
M.S. Soil Science
- **Tom Paluso**                            **Mine Engineering, Geology and Hydrology**  
B.S. Engineering  
M.S. Civil/Environmental Engineering
- **David Steed**                           **Co-Project Manager, NEPA Development, Land Use and Wilderness**  
B.S. Ecology

##### 6.2.2 BLM Interdisciplinary Team

- **Mark Mackiewicz**, Realty Specialist                      **Project Manager, NEPA Development**
- **Kerry Flood**, Hydrology Specialist                      **Hydrology, Soils**
- **Chad Hunter**, Range Specialist                      **Grazing and Vegetation**
- **Tom Gnochek**, Wilderness Specialist                      **Wilderness Values**
- **Blaine Miller**, Cultural Specialist                      **Cultural Resources**
- **David Mills**, Wildlife Specialist                      **Wildlife**
- **George Tetrault**, Geologist                      **Mineral Resources**
- **Greg Thayn**, NEPA Coordinator                      **EA Review**
- **Dennis Willis**, NEPA Coordinator                      **NEPA Development, Vehicular Traffic, Visual Resources, and Wilderness Values**

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## **CHAPTER 7.0 APPENDICES**

- APPENDIX A**     A Summary of Public Scoping Comments
- APPENDIX B**     Engineering Associated with the Existing Lila Canyon Road  
Emery County Road Department Correspondence
- APPENDIX C**     Utah Department of Transportation Right-of-Way  
Encroachment Permit
- APPENDIX D**     Mine Surface Facility Reclamation Plan
- APPENDIX E**     Natural Resource Conservation Service Correspondence -  
Prime Farmlands  
Soil Characteristics
- APPENDIX F**     Water Rights
- APPENDIX G**     TES Survey Reports  
1998 and 1999 Raptor Surveys  
U.S. Fish and Wildlife Services Correspondence - TES  
Species

# **APPENDIX A**

## **A SUMMARY OF PUBLIC SCOPING COMMENTS**

## IDENTIFIED ISSUES IDENTIFIED DURING PUBLIC SCOPING

Party	Concerns	Issues and Requests for Evaluation
Grazing Permittee	Impacts to grazing	1. Fencing on both sides of road and cattle guards placed at appropriate sites.
		2. Access to water sources if fences are constructed.
	Impact to hydrological resources	3. Possible construction of an underpass to alleviate water source issue.
		4. Evaluation of impacts of mining on ground water and surface water.
UDOT Engineer	Need for upgrading current road conditions	1. The need for full acceleration and deceleration lanes to handle traffic use. increased
Rex Funk, Emery County Roads	Need for upgrading current road conditions	1. Horse Canyon road needs to be widened, drainage work, and restructuring to an improved gravel road treated with an enzyme base to tie road base together.
SUWA	Impact to proposed wilderness designations	1. Surface disturbance overlapping the existing and proposed BLM Wilderness Study Areas.
	Impacts to Resources	2. Impact to resources within the area resulting from dust, noise, light and traffic associated with the operation.
		3. Socio-economic figures presented in the scoping document are heavily skewed, and must be balanced by the significant costs of the impacts on the rare resources.
		4. Mitigation, reclamation and monitoring procedures must be fully addressed and included as enforced stipulations.
	Development of an Environmental Impact Statement	5. Since surface disturbance encompasses 2,000 acres, an Environmental Impact Statement (EIS) should be conducted vs. an EA.
UEI President	Conflict of proposed wilderness study areas	1. WSA delineations overlap UEI subleased Federal coal leases under and/or has applied for ROW for roads, utilities, and surface facilities.
		2. The errors identified in Utah Wilderness Inventory 1999" document regarding inability, access and established land use should not be used for resource review in the EA.
		3. Evaluation of the proposed WSA boundaries negatively impact the economics of the project.

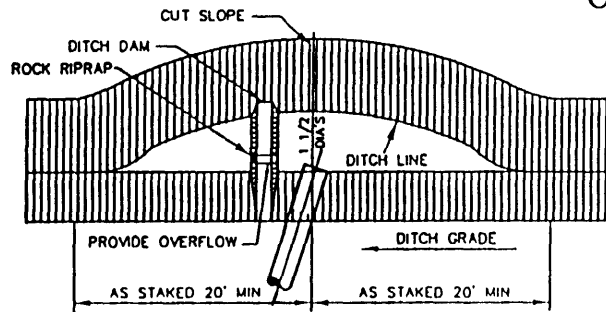
# **APPENDIX B**

**ENGINEERING ASSOCIATED WITH THE LILA  
CANYON ROAD**

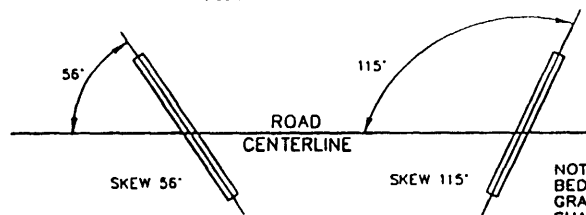
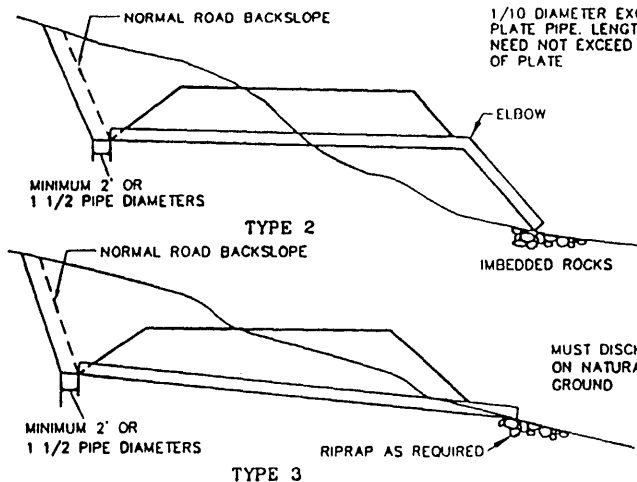
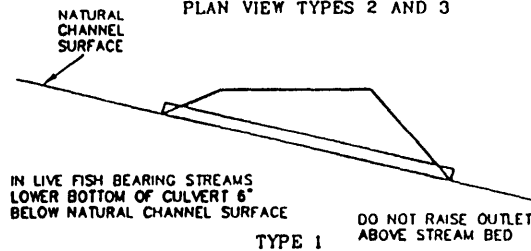
**EMERY COUNTY ROAD DEPARTMENT  
CORRESPONDENCE**

# CULVERT CONSTRUCTION DETAILS

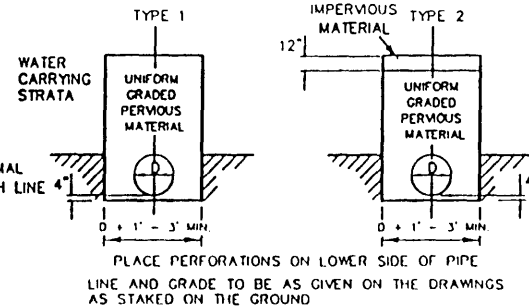
FIGURE



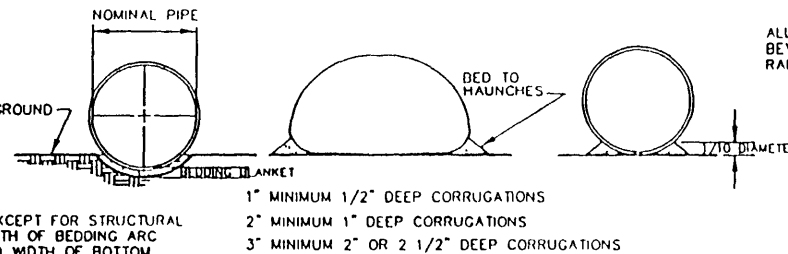
PLAN VIEW TYPES 2 AND 3



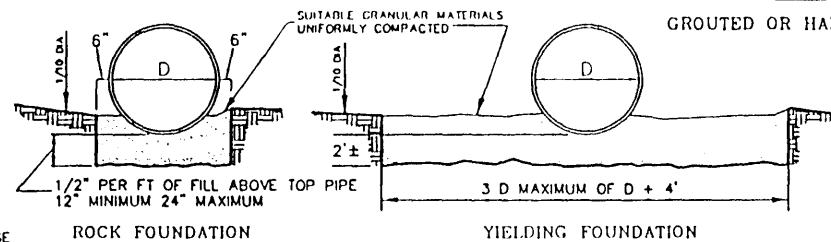
SKEW DIAGRAM



PERFORATED UNDERDRAINS



TYPICAL BEDDING DETAILS



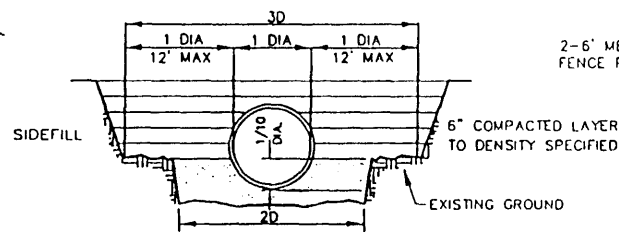
GROUTED OR HAND PLACED RIPRAP HEADWALLS

GENERAL NOTES

ALL BEVELED PIPES ARE TO HAVE  
STEP BEVELS. PIPE ARCHES SHALL  
BE BEVELED TO THE TOP OF THE  
CORNER RADIUS

SPECIAL ANCHORING TO BE PROVIDED  
WHEN CALLED FOR IN THE CULVERT  
LISTING

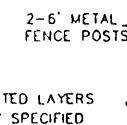
PROVIDE 3 WRAPS OF  
#9 GALVANIZED WIRE  
AROUND THE PIPE AND  
AROUND EACH POST



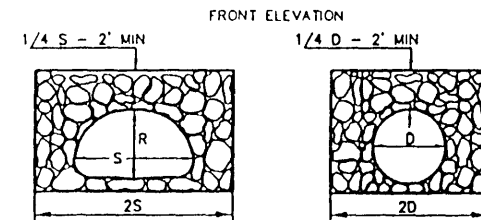
NOTE  
BEDDING BLANKET TO BE SUITABLE  
GRANULAR MATERIAL ROUGHLY  
SHAPED TO FIT BOTTOM OF PIPE

NOTE  
MINIMUM COVER FOR PAVED  
SURFACE IS 12" MINIMUM  
COVER FOR DIRT SURFACE IS 18"

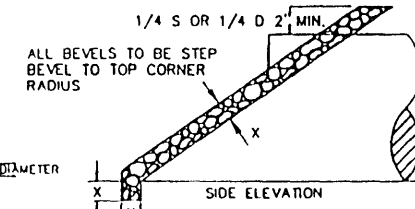
SIDEFILL



SPECIAL ANCHORING TYPE 2 DOWNDRAINS

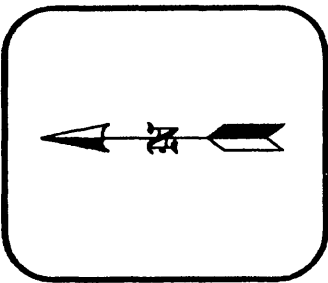
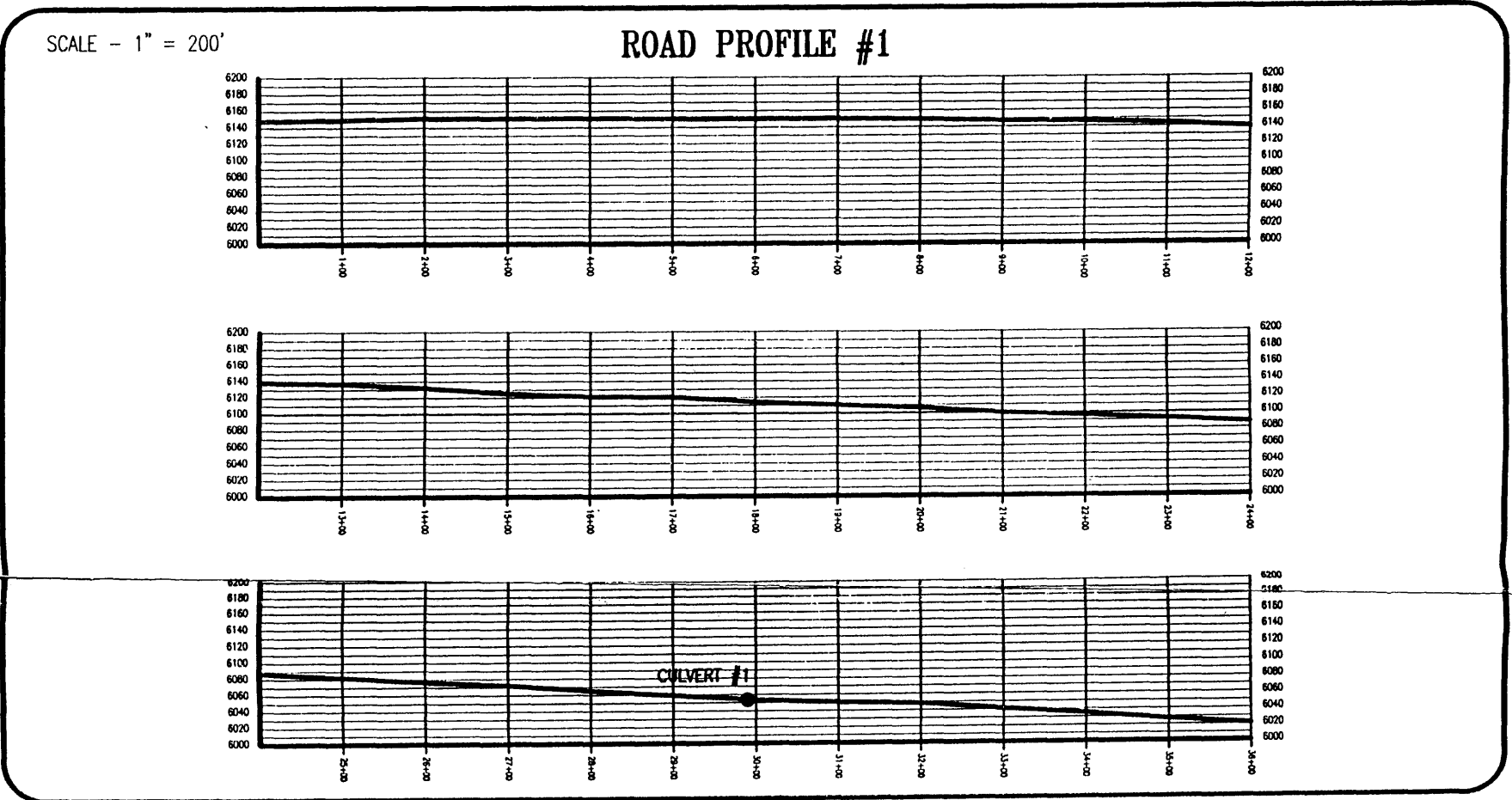
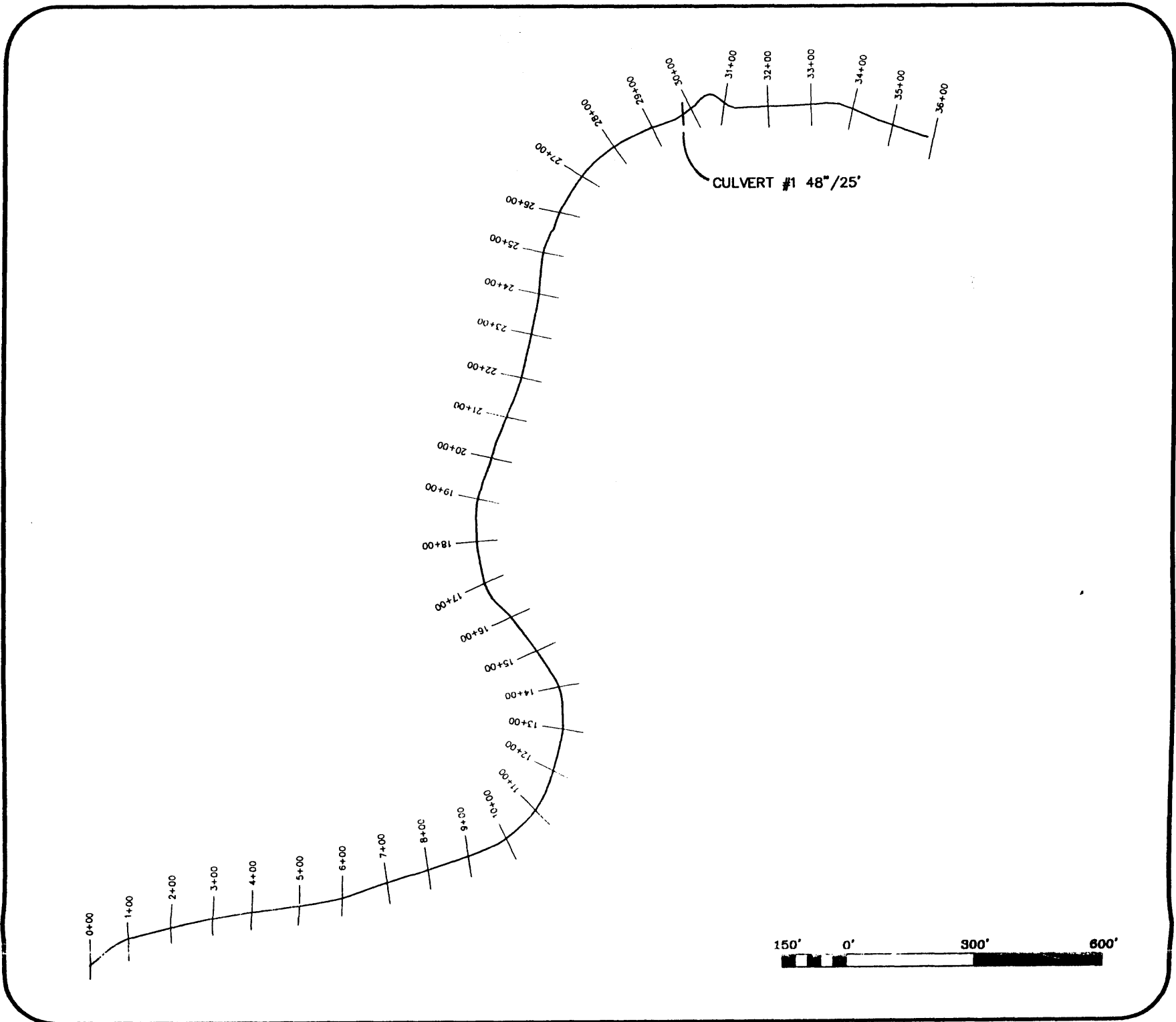


NOTE  
IN NARROW CHANNELS ADJUST  
RIPRAP TO FIT ORIGINAL  
STREAM BANKS.



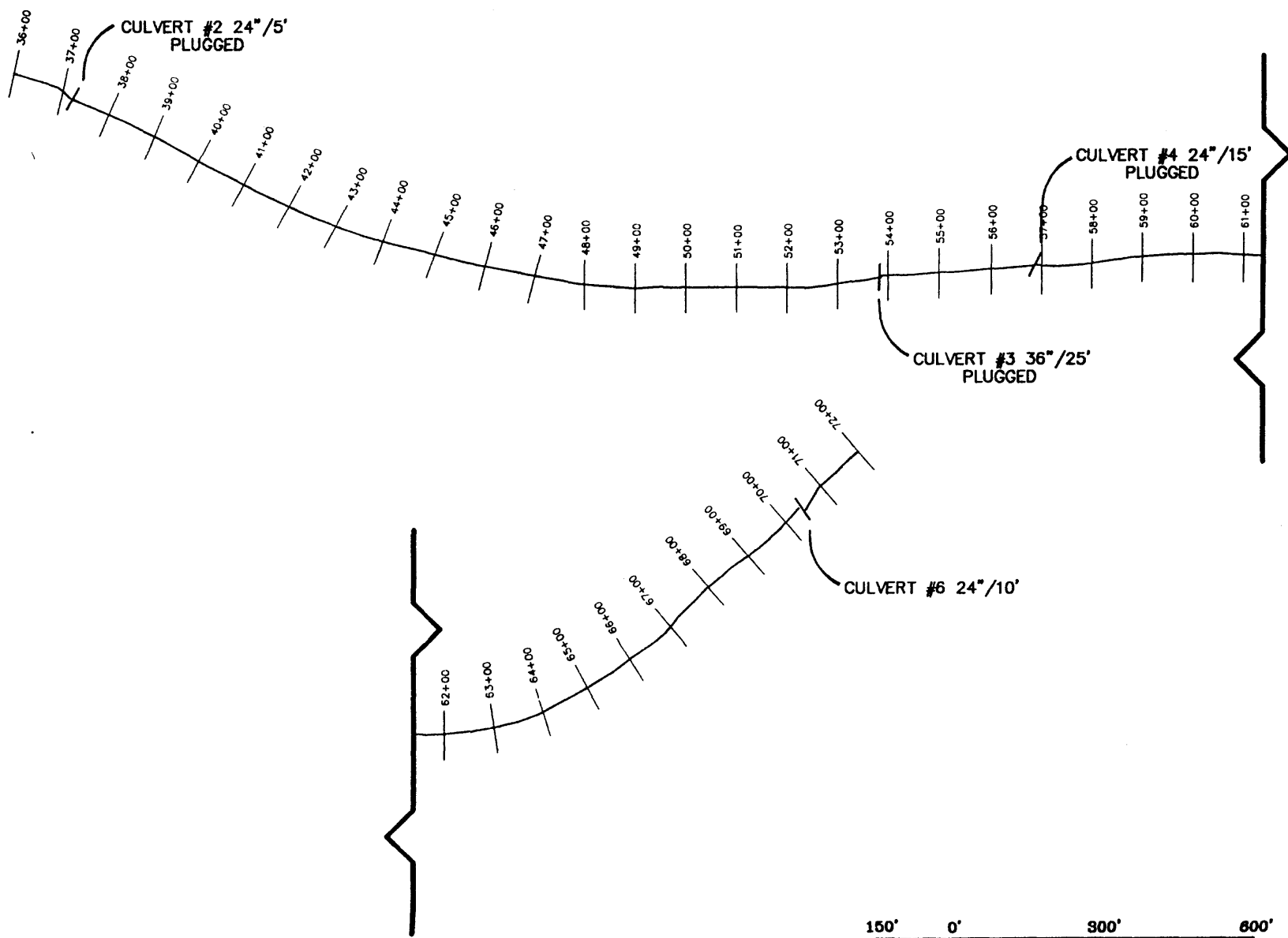
VARIES WITH PIPE D OR S

D OR S	
LESS THAN 60"	12"
60" TO 96"	18"
MORE THAN 96"	24"



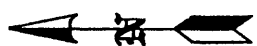
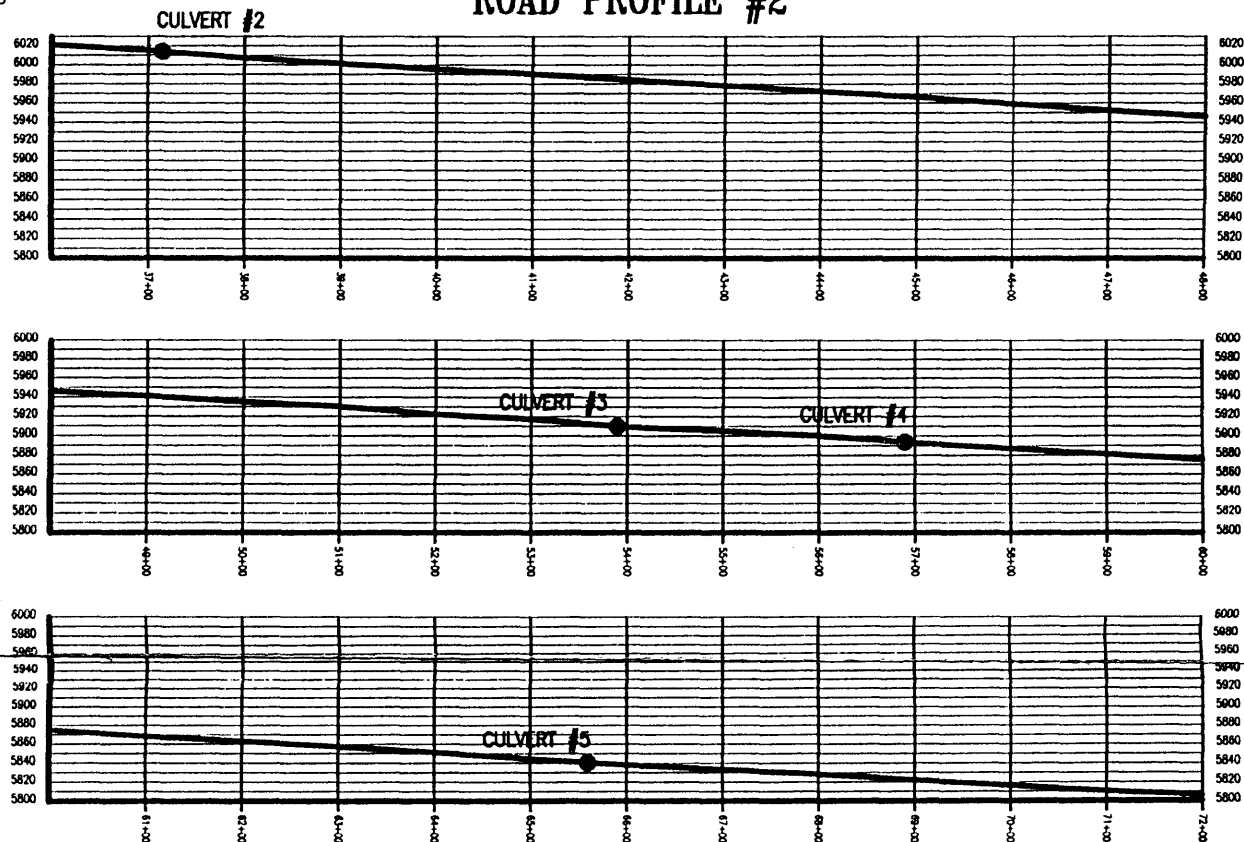
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LILA CANYON ROAD PLAN AND PROFILE	



SCALE - 1" = 200'

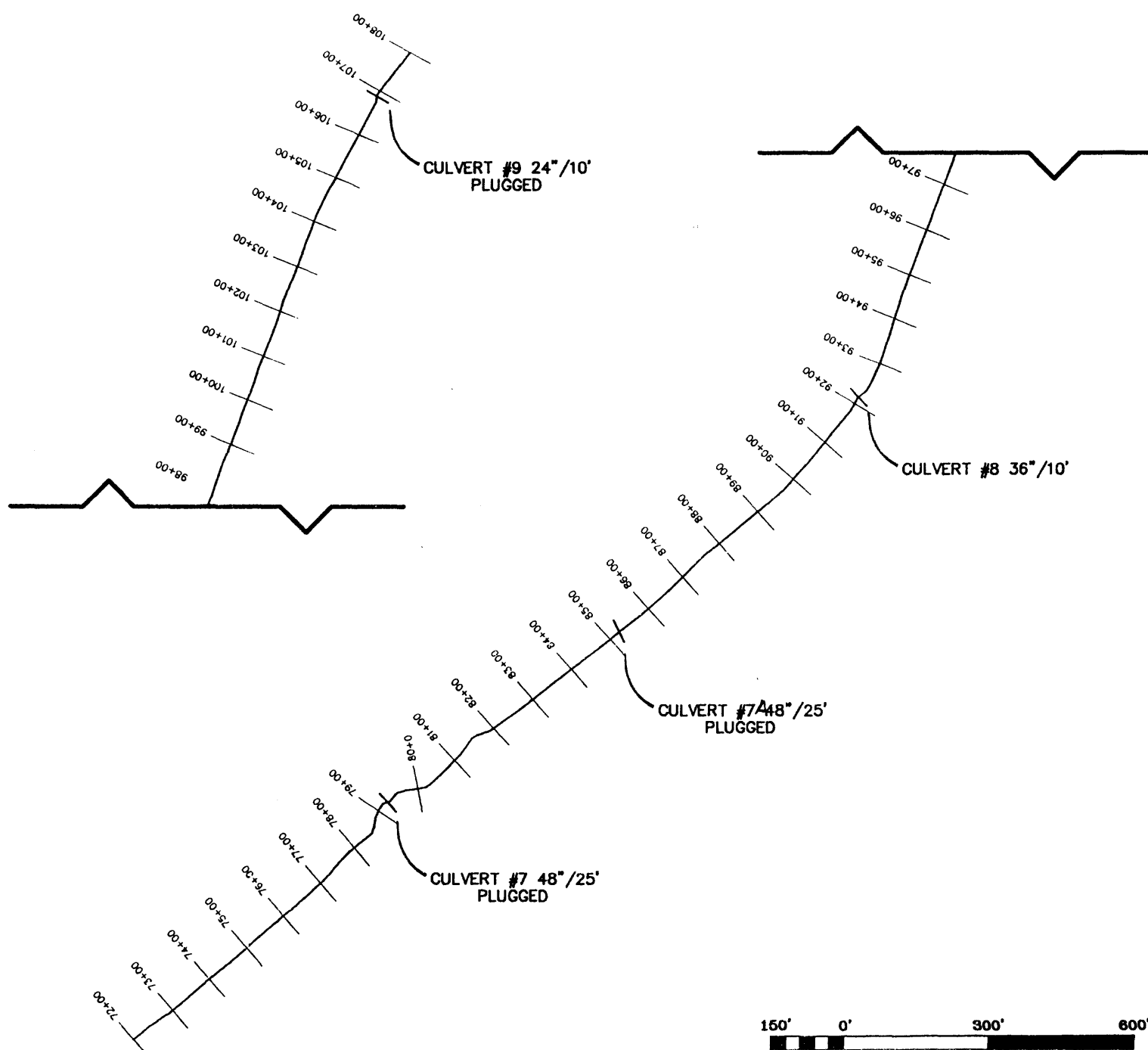
### ROAD PROFILE #2



LEGEND:

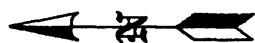
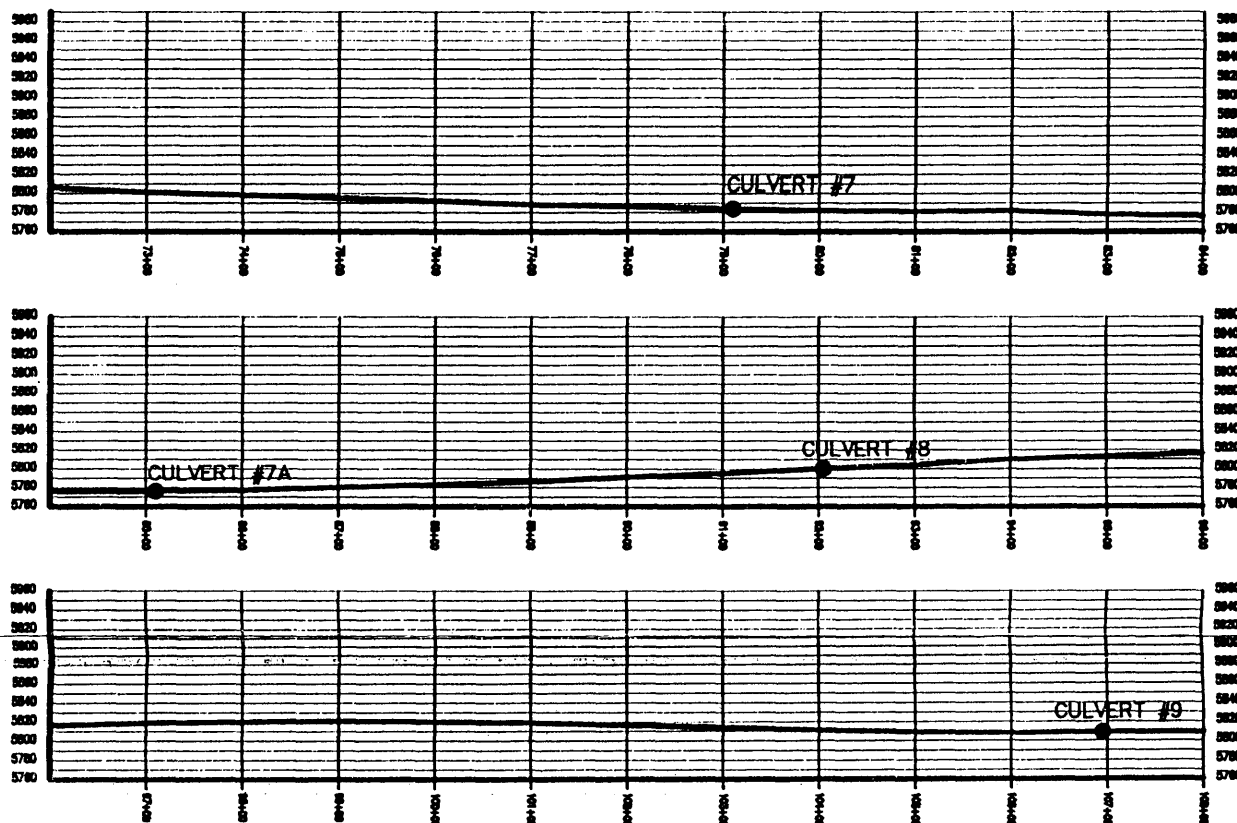
LILA CANYON ROAD PLAN AND PROFILE





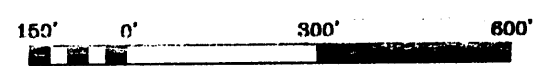
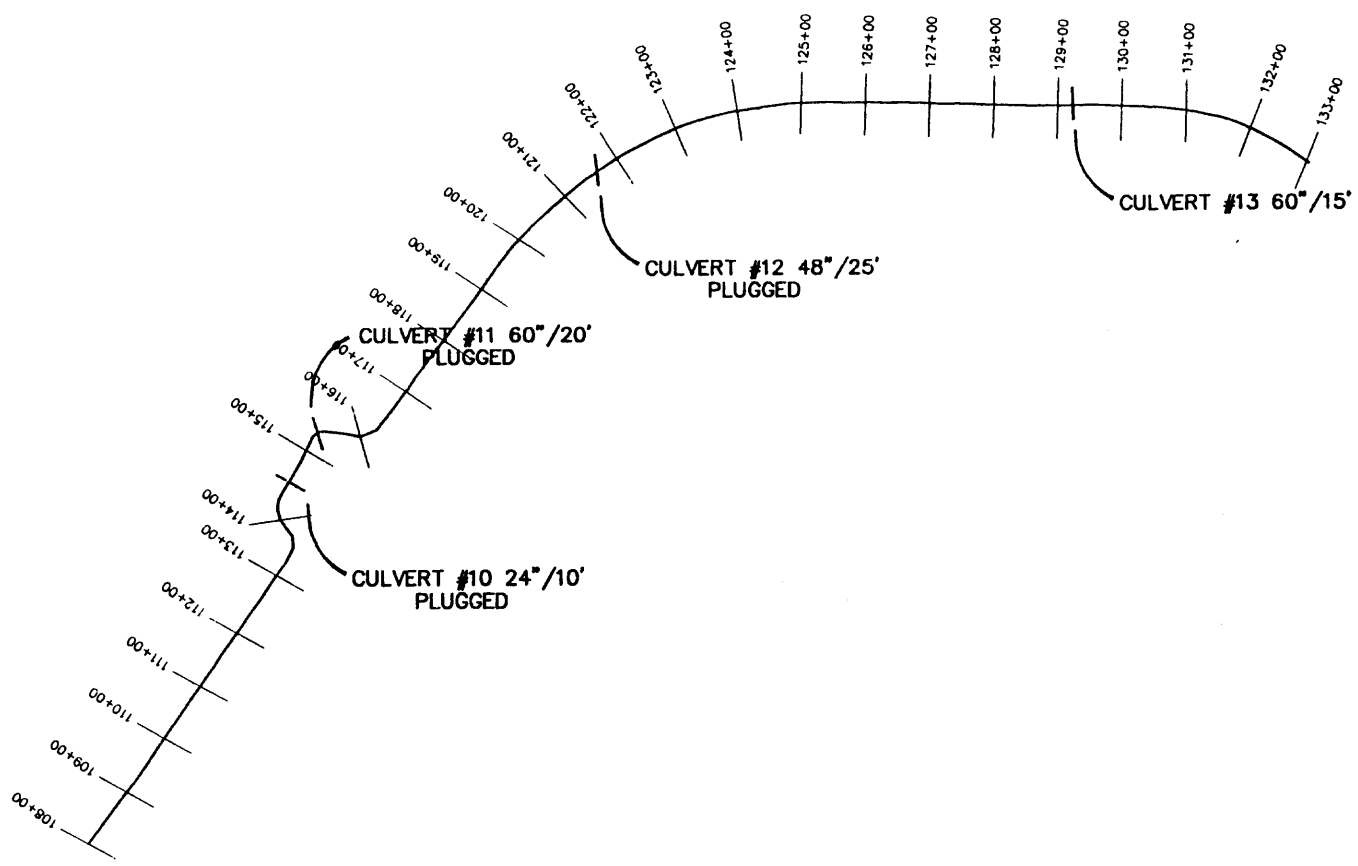
SCALE - 1" = 200'

### ROAD PROFILE #3



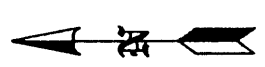
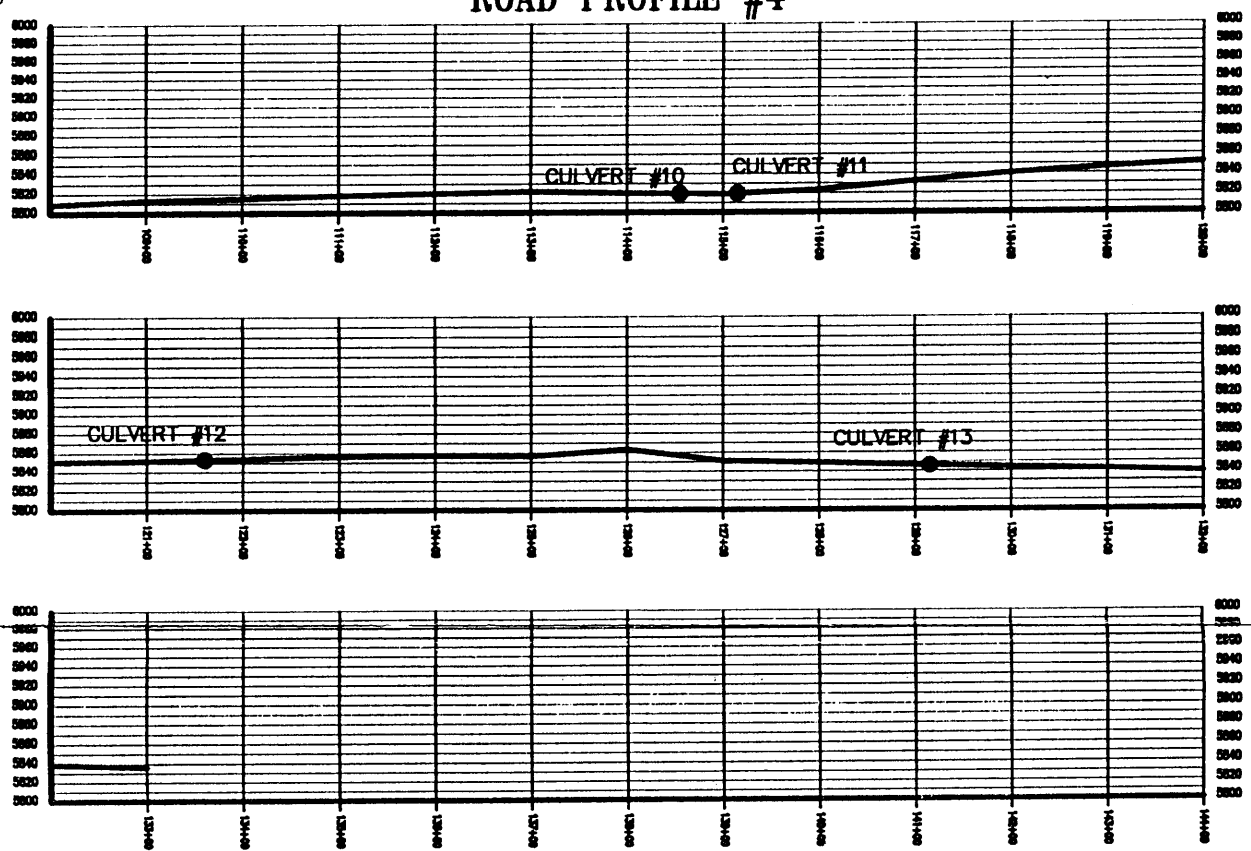
LEGEND:

LILA CANYON ROAD PLAN AND PROFILE



SCALE - 1" = 200'

### ROAD PROFILE #4



LEGEND:

LILA CANYON ROAD PLAN AND PROFILE


Letter to Jay Marshall  
UtahAmerican Energy, Inc.  
January 19, 2000  
page 2

Again, the lower route is the only realistic haul route to consider and of course that is why Commissioners signed an agreement with UtahAmerican Energy for utilizing the Lila Canyon Road (#126) instead of the Horse Canyon Road. When other coal resources or timbering begin which directly impact the upper Horse Canyon Road (#125) Emery County will deal with the users through its Encroachment process to improve that road. We, of course, do not want to lose sight of the fact that the lower #126 route also serves other users such as the Gold Terra Mine development, cattlemen and other recreational interests.

To suppose that UtahAmerican Energy, Inc. and Emery County could economically upgrade the old trolley grade and ensure year round access and safety is not realistic. It is my opinion however that four wheel drive vehicles using the trolley grade would not necessarily require road improvement during mine development even though the road is very rough to the mine site; it's a slow go but we have visited the site several times in our 4 wheel drive Bronco.

Sincerely,

  
Rex Funk,

Road Supervisor

RF/ljs

cc Kent Petersen, Commissioner  
Ira Hatch, Commissioner  
Randy Johnson, Commissioner  
Val Payne, Public Lands Director

## **APPENDIX C**

**UTAH DEPARTMENT OF TRANSPORTATION  
RIGHT-OF-WAY ENCROACHMENT PERMIT**

# UtahAmerican Energy Inc.

P.O. Box 986  
Price, Utah 84501  
+1 (435) 613 0393  
Fax +1 (435) 613 0393

July 28, 1999

Dale Stapley  
Utah Department of Transportation  
Encroachment & Permits Officer  
Price District  
940 South Carbon Avenue  
Price, UT 84501-0903


RE: Application for Right of Way Encroachment Permit

Dear Mr. Stapley:

Please find attached a copy of the Right of Way Encroachment Permit Application filled out by UtahAmerican Energy, Inc.

If you have any questions or concerns about this matter, please feel free to call Jay Marshall at (435)613-0393 or Tom Paluso at (435)472-3814.

Sincerely,

  
R. Jay Marshall, P.E.

JM/cr

ATTACHMENT 1

UTAH DEPARTMENT OF TRANSPORTATION  
Application for Right of Way Encroachment Permit  
(WORK CANNOT BEGIN UNTIL PERMIT IS APPROVED)

Date July 28, 1999

To: District Director  
UTAH DEPARTMENT OF TRANSPORTATION

- \*(1) Application is hereby made by: Utah American Energy, Inc  
\*(2) Address: P. O. Box 986 Price, UT 84501 Telephone Number (435) 613-0393  
\*(3) for permission to do the following: Connect 30' graveled coal haul road with U. S. Highway 191/6.  
\*(4) Location: 3.5 miles south of State Highway 124 junction with U. S. Highway 191/6. New coal haul road  
will head east from U. S. Highway 191/6.  
City N/A County Emery Highway No. 191/6  
Milepost 270.5 on Hwy SR 6 in accordance with the attached plan \*(5)  
\*(6) Construction will begin on or about June 15, 2000  
and will be completed on or before October 31, 2000.

New underground utility installations crossing highway must be placed by boring. If boring is impossible due to unusual circumstances such as soil conditions, existing utilities, etc., a request for an exception may be made to the District Director and the following information provided:

- a. Type of pavement N/A  
b. Excavation will be \_\_\_\_\_ feet long by \_\_\_\_\_ feet wide and \_\_\_\_\_ feet deep.  
c. A bond in the amount of \$ \_\_\_\_\_ has been posted with \_\_\_\_\_  
\_\_\_\_\_ Tel. No. \_\_\_\_\_ to run for a term of three (3) years after completion  
of work to guarantee satisfactory performance.

If this permit is granted, we agree to comply with all conditions, restrictions, and regulations contained in the UDOT Policy 08-87 "Accommodation of Utilities on Federal-Aid and Non Federal-Aid Highway Right of Way", and "Special Limitations" required by the District Director or his duly authorized representative.

Utah American Energy, Inc.  
Owner

R. Jay Marshall  
Signature

Chief Engineer  
Title

\*Refer to Instruction on back

=====

To be filled in by the District Director:

Permit \_\_\_\_\_ should \_\_\_\_\_ should not be granted.

Special Limitations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
District Traffic Engineer

\_\_\_\_\_  
District Director

# **APPENDIX D**

## **MINE SURFACE FACILITY RECLAMATION PLAN**

## **Reclamation and Enhancement Plan Associated with the Lila Canyon Mine Site**

### **I. Description of Existing Area**

The Lila Canyon Mine constitutes a disturbance of approximately 47.9 acres. For the purpose of reclamation, the total area is divided into two units. The upper unit consists of the water treatment area and the portal pad (Approximately 3.4 acres). The lower unit consists of the majority of the facilities; bath house, parking, shop, and coal handling structures (approximately 44.5 acres, See Plate 5-2 Surface Facilities). In addition to the above, there is a spoil/refuse disposal area and a sediment pond. The pond is the only structure that will remain through phase 2 bond liability.

This new disturbance constitutes a loss of approximately 47.9 acres of critical high value big game winter range. In addition, it distracts from the general aesthetics of the upper reaches of Lila Canyon.

The following reclamation plan is designed to rehabilitate this area to such a degree that the appearance would be aesthetically compatible with the adjacent undisturbed area and reestablish a desirable and diverse vegetative cover that will enhance wildlife habitat and domestic grazing.

### **II. Demolition and Clean Up**

After abandonment the area will be cleared of all mine related material and structures. The majority of the coal handling equipment; belt lines, conveyors, and some of the metal fab buildings, will be sold as used equipment and removed prior to demolition. The balance of the structures will be demolished utilizing heavy equipment such as; dozers, loaders, trackhoes, various shears for steel dismantling etc. The trash (non metal, non concrete material) will be removed from the site and hauled to an approved land fill. Any contaminated soil or debris, such as coal refuse, that has petroleum additives would be hauled to an approved disposal site. The balance of the non-combustible, non-ferrous debris such as concrete would be buried on site.

All material with salvage value would be removed by a licensed salvage company.

### **III. Reclamation Plan**

Following the cessation of mining, the portal cuts can be brought back to approximate original contours on all areas other than the rock ledges.



## Earthwork

**Pad and Facility Site-** This area would be recontoured utilizing a D-8 Class or larger crawler dozer in conjunction with a trackhoe. The level nature of the topography would allow the equipment to work in unison.

To create a natural slope similar to the premining topography (see Plate 7-7 Post Mining Contour Map), the natural channels would be reconstructed and rip rap to minimize the potential for erosion as detailed in Chapter 7 Appendix 7-4.

## Erosion

Following the ripping the stored topsoil (growth media) would be spread to a uniform depth over the entire lower area.

It is imperative that as the area is recontoured that the surface is pock-marked (see Figure 1). Pock-marking creates a very uneven surface which to a large degree diminishes the likelihood of erosion (gullies and rills) and enhances the success of revegetation.

In conjunction with the pock-marking the trackhoe can cast any vegetation; dead trees, large rocks, back onto the recontoured surface. The pock-marking creates a more mesic site by trapping precipitation, both rain and snow, in the depressions. The debris (dead trees, rocks etc.) on the surface accomplish the same function to a lesser degree by providing solar protection. In addition, the combination of the above makes the site more aesthetically compatible with the adjacent undisturbed areas and to a large degree discourages both domestic stock as well as big game from adversely impacting the site until the vegetation can become established.

## Revegetation

In conjunction with the earth moving the site will be hydro seeded, mulched, tackafied and fertilized. The following methodologies have been incorporated on numerous sites on both private and federal lands and have proven very successful frequently allowing Phase 2 Bond release in as little as three growing seasons.

### A. Methodology-Seeding and Mulching

A hydro-seeder is positioned directly behind the trackhoe as the hoe recontours and implements the site seed bed preparation, the hydro-seeder can spray over the hoe or

utilize a hose line to apply the seed in combination with 500#/acre wood fiber mulch and 100#/acre of a tac agent. Following the seeding the entire area is then over sprayed with 1500 to 2000 pounds of wood fiber mulch per acre.

An additional 100#/acre of tac and 200#/acre of 16-16-8 fertilizer would be added to this mulch slurry. The lower area would be hydro-seeded and mulched utilizing the same procedures with the exception the operation can occur as each area is ready and should interfere with adjacent earthmoving activities.

Depending on weather conditions the hydro-mulched areas should be allowed to harden off (dry on the surface) from 24 to 72 hours before the area is walked on.

### **B. Methodology-Seedling Planting**

Bare root or containerized seedling will be planted at a rate of approximately 200/acre. (Ratio and species to be determined by BLM and UDOGM).

The planting procedures as outlined must be strictly adhered to in order to insure a reasonable degree of success. The following is a list of key points:

1. Live Seedlings - ideally dormant planting stock
2. Stock - primarily root mass kept moist at all times
3. Position of seedlings to maximize survival potential
4. Proper Planting Procedure (Figure 4)
  - A. Straight and natural root alignment (no "J" roots)
  - B. Firm soil placement length of root mass (no air pockets)
  - C. The root collar needs to be ½ to 1 inch below grade (soil depth)

The actual planting of seedling can follow the seeding mulching anywhere from 24 hours up to two years with little or no adverse results. Ideally, planting should occur as late as possible in the fall prior to the first snow or as early in the spring as the site is accessible. Fall planting normally produces better results and is not as vulnerable to weather conditions. In both cases, survival will increase if the planting stock is dormant when planted.

The root mass should be kept moist at all times, during transport, handling and planting.

This is somewhat easier with containerized stock, but can be accomplished with bare root stock if a few simple procedures are followed.

A good procedure to insure moist roots on bare root stock is to mix a slurry of vermiculite and/or potting soil in a 30 gallon water filled barrel. Cut pieces of burlap approximately 18X24 inches and soak overnight in the slurry. Wrap the root mass of the bare root stock loosely in a roll of saturated burlap prior to planting. Each roll should contain 50 to 100 seedling loosely rolled within the burlap and placed in a planting bucket or bag for field use. Periodically during the day the rolls can be wet down in the event they start to dry.

It is imperative to have the hole dug and ready to plant, prior to removing the seedling from the container or burlap roll. In warm or windy conditions a seedling's root hairs can dry out in as little as seven seconds, effectively killing the plant.

When selecting the location for the seedling always keep in mind to maximize potential for moisture and shade, select "depressions" over "humps" and areas adjacent to rocks, dead trees, etc. to provide solar protection. In pock marks, the seedling should be placed approximately one-third the way up from the bottom. This area allows the roots to extend into the moist soil and avoids having the seedling covered by sluffing or siltation. (See Figure 2)

The last area of concern is to utilize correct planting procedures. There are a variety of planting tools on the market. They range from a 16 inch tile spade to a region 6 "hoedad." Any tool capable of digging a hole at least two inches deeper than that the root mass is adequate.

It is imperative that the root mass is placed in the hole in a straight near natural configuration. The soil should be firmly pressed around the roots utilizing your hand, not a foot or stick. The planter must make sure there are no air pockets left in the hole, and ensure the seedling is planted to the correct depth.

This is accomplished by showing each planter the location of the root crown. It is advantageous for the root crown to be covered by  $\frac{1}{2}$  to 1 inch of soil at time of planting. This allows the soil to settle without exposing the root crown. (See Figure 3)

Following the planting all trash containers etc. would be removed from the site. A four strand barb-wire fence will be constructed around the lower area to preclude domestic stock.

A sign saying "This Area is Temporarily Closed for Reclamation" should be posted on the fence and maintained until the site is revegetated. After the vegetation is well established (Phase 2 Bond Release) the sediment pond can be removed by simply recontouring back

over the pond area.

The same seeding and planting methodologies will be utilized to revegetate this small area.

Figure 1  
Pock Mark Configuration

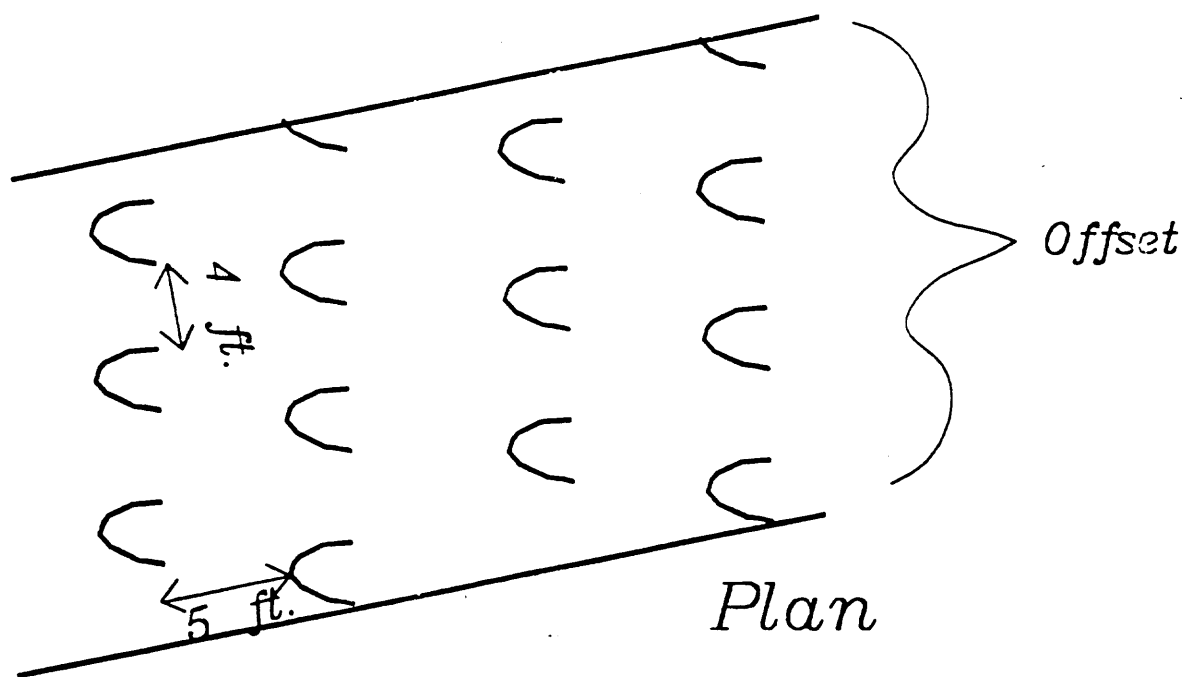
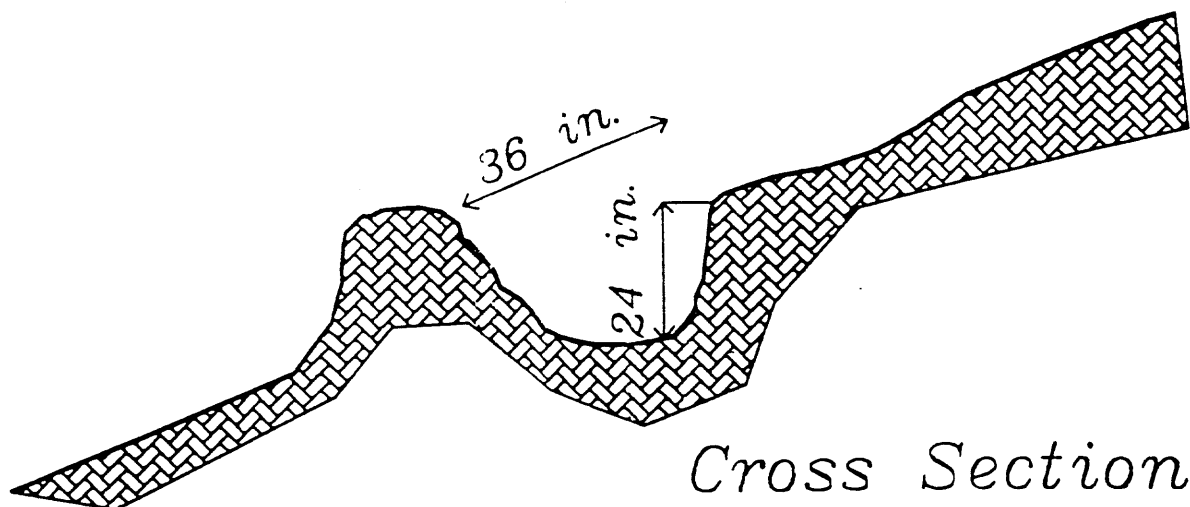
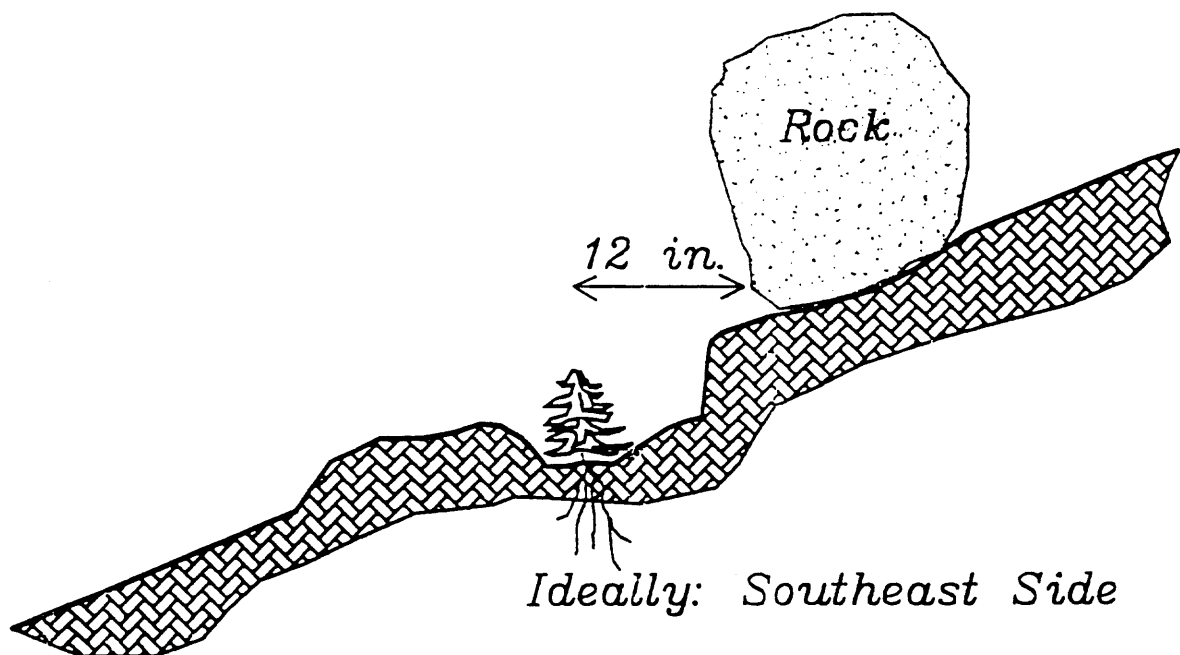
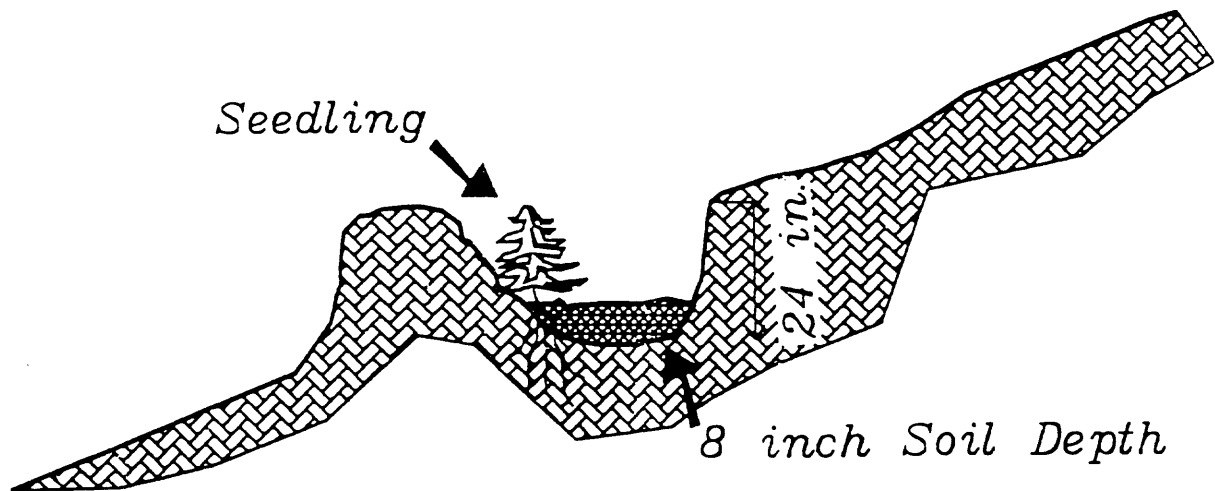
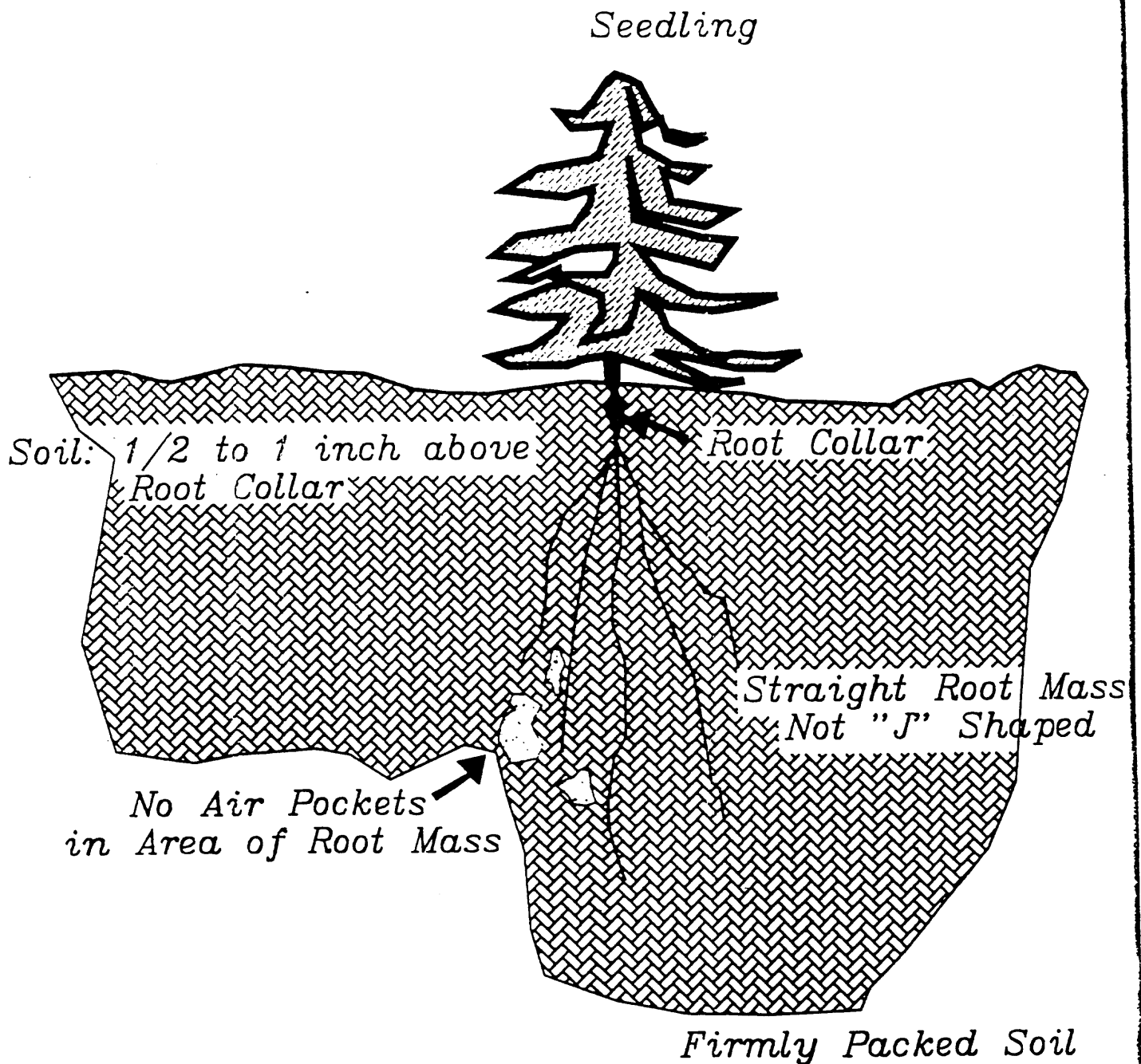


Figure 2  
Seedling Locations



# Figure 3 Seedling Planting Procedure



# **APPENDIX E**

## **NATIONAL RESOURCE CONSERVATION SERVICE CORRESPONDENCE - PRIME FARMLANDS**

### **SOIL CHARACTERISTICS**



**USDA** Natural Resources  
Conservation Service

350 North 400 East  
Price, Utah 84501  
801-637-0041

DATE: June 8, 1998

FILE CODE: 290-11-11-5


SUBJECT: PRIME FARMLAND DETERMINATIONS

TO: Environmental Industrial Services  
31 NO Main Street  
Helper, Ut 84526

RE: Lila Canyon Coal Lease Area and Support Facilities, Emery County Utah

After site investigation, the Natural Resources Conservation Service has determined that no prime farmland or farmland of statewide importance occurs on the proposed transportation and utility corridor and area of surface facilities for the proposed Lila Canyon Coal Lease Area because there is no developed irrigation system on arid soils.

Location map is enclosed.

  
Leland Sasser  
Soil Scientist

Attachment

cc: William Broderson, State Soil Scientist, NRCS, UT

# FEATURES OF SOIL MAP UNITS

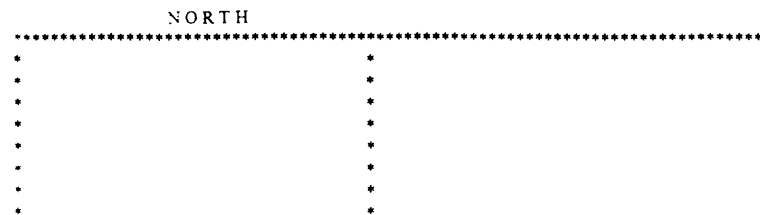
Map Unit Symbol	Soil Components	% Slope	Land Capability Class (nonirrigated)	Range and Woodland Sites	Erosion Rooting Depth (Inches)	Erosion Hazard (By water)
BMD	Strych, very stony, fine sandy loam	3-30	VIIIs	Semi-desert Stony Loam (Utah Juniper-Pinyon)	60 or more	Moderate
BME2	Strych, very stony loam, dry	3-30	VIIIs	Semi-desert Stony Loam (Utah Juniper-Pinyon)	60 or more	Moderate
BNE2	Strych, very bouldery fine sandy loam	3-20	VIIIs	Semi-desert Bouldery Loam	60 or more	Moderate
BY	Badland, Rubbleland, Rock outcrop	30-80	VIIIe VIIIIs	N/A	N/A	Severe or Badland
CHC2	Shipeta, silty, clay loam	8-15	VIIIe	Desert Shallow Clay	10-20	Severe
EED2	Hanksville, very gravelly fine sandy loam	3-15	VIIIe	Desert Clay (shadscale)	10-20	Moderate
KAC	Persayo Greybull	3-15	VIIIe VIIIe	Desert Loamy Clay (shadscale) Desert Loam	10-20 20-40	Severe Moderate
NGG2	Gerst Strych	30-70	VIIIe VIIIe VIIIe	Semidesert Very Steep Shallow Clay Semidesert Very Steep Loam	8-20 60/more	Moderate Severe Severe
RIA2	Badland			N/A		
RZH	Ravolta Toddler	1-6	VIIIs VIIIs	Desert Loam (shadscale) Alkali Flat (greasewood)	60/more 60/more	Moderate Moderate
	Rock Outcrop Atchee	50-80	VIIIs	N/A Semidesert, Very Steep, Shallow Loam, (Utah Juniper-Pinyon)	N/A 5-20	N/A High
SMD2	Rubbleland			N/A	N/A	N/A
	Cliffsand Minchey	1-8	VIIIs VIIIe	Desert Sandy Loam Desert Loam	60/more 60/more	Slight Slight

# **APPENDIX F**

## **WATER RIGHTS**

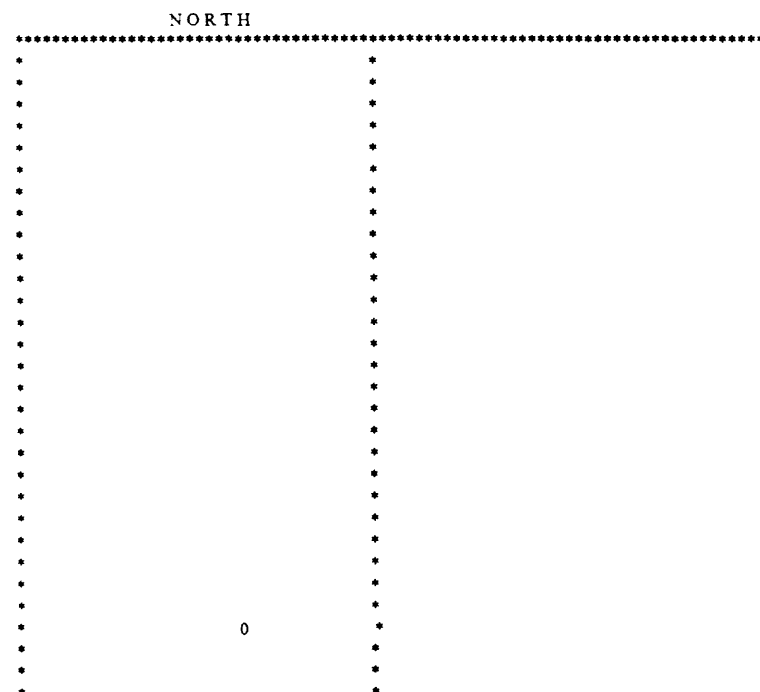
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WATER RIGHT POINT OF DIVERSION PLOT CREATED FRI JUL 30, 1999, 12:46 PM  
PLOT SHOWS LOCATION OF 1 POINTS OF DIVERSION

PLOT OF ALL QUARTER(S) IN SECTION 35 TOWNSHIP 15S RANGE 14E SL BASE AND MERIDIAN  
PLOT SCALE IS APPROXIMATELY 1 INCH = 1000 FEET



HTTP/1.1 200 OK  
Date: Fri, 30 Jul 1999 12:16:23 GMT  
Server: Apache/1.2.3  
Connection: close  
Content-Type: text/html

UTAH DIVISION OF WATER RIGHTS  
WATER RIGHT POINT OF DIVERSION PLOT CREATED FRI JUL 30, 1999, 12:46 PM  
PLOT SHOWS LOCATION OF 1 POINTS OF DIVERSION  
PLOT OF ALL QUARTER(S) IN SECTION 35 TOWNSHIP 15S RANGE 14E SL BASE AND MERIDIAN  
PLOT SCALE IS APPROXIMATELY 1 INCH = 1000 FEET



UTAH DIVISION OF WATER RIGHTS  
NWPLAT POINT OF DIVERSION LOCATION PROGRAM

U A P T S U P R												
MAP	WATER	QUANTITY	SOURCE DESCRIPTION or WELL INFO			POINT OF DIVERSION DESCRIPTION			N P E E U G T E			
CHAR	RIGHT	CFS	AND/OR	AC-FT	DIAMETER	DEPTH	YEAR LOG	NORTH	EAST	CNR	SEC	TWN
RNG B&M N P R R W P D												
0	91	1903	.0800	.00	Unnamed Spring					X	X	X
WATER USE(S): STOCKWATERING						PRIORITY DATE: 00/00/1869						
State of Utah School & Institutional Tru						675 East 500 South, 5th Floor			Salt Lake City		UT 84102	

0 91 1903 .0800 .00 Unnamed Spring  
WATER USE(S): STOCKWATERING  
State of Utah School & Institutional Tru 675 East 500 South, 5th Floor

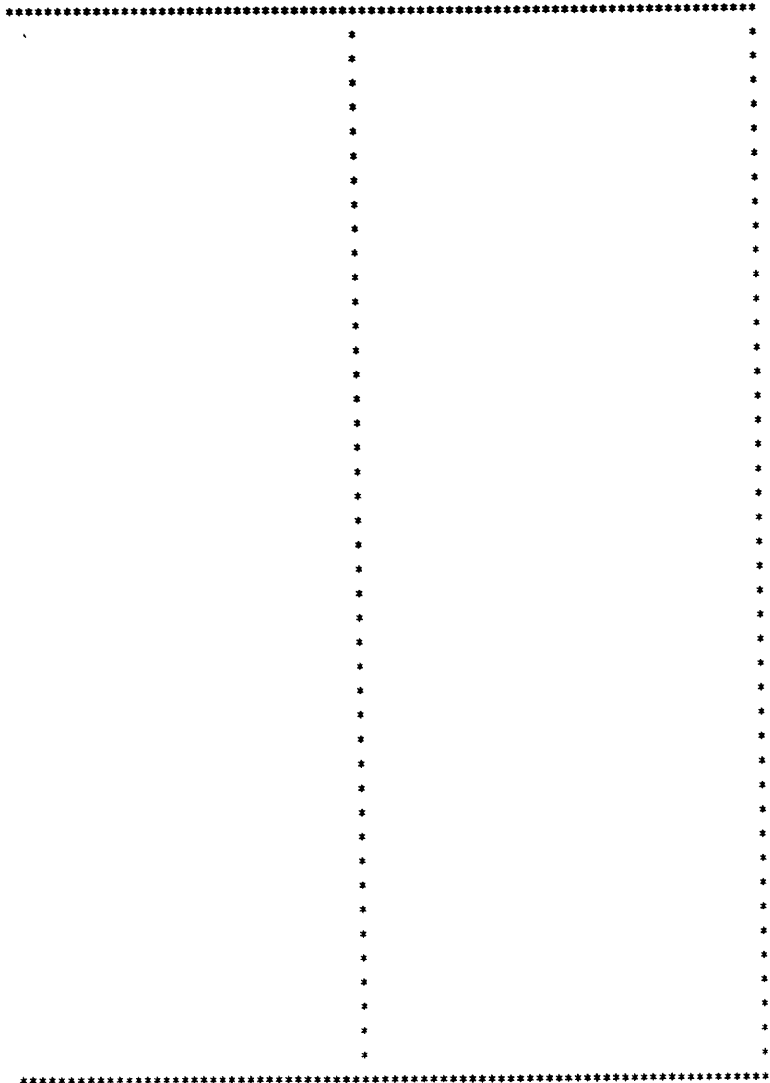
PRIORITY DATE: 00/00/1869  
Salt Lake City UT 84102

UTAH DIVISION OF WATER RIGHTS  
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PLOT SHOWS LOCATION OF 0 POINTS OF DIVERSION

PLOT OF ALL QUARTER(S) IN SECTION 36 TOWNSHIP 15S RANGE 14E SL BASE AND MERIDIAN

PLOT SCALE IS APPROXIMATELY 1 INCH = 1000 FEET

NORTH



# **APPENDIX G**

## **TES SURVEY REPORT**

### **1998 AND 1999 RAPTOR SURVEYS**

#### **U.S. FISH AND WILDLIFE SERVICES CORRESPONDENCE - TES SPECIES**

CANYON SWEETVETCH, CREUTZFELDT-FLOWER, LOGGERHEAD SHRIKE,  
AND BURROWING OWL INVENTORIES FOR THE LILA CANYON MINE  
PROPOSAL

CONDUCTED BY

EIS ENVIRONMENTAL CONSULTING

MAY 21<sup>st</sup>, 22<sup>nd</sup>, AND 26<sup>th</sup>

**Introduction**

Basic Management, Price Utah, has proposed to build a mine facility located within Lila Canyon of the Book Cliffs/Roan Cliffs Plateau Physiographic Region. The proposed mine facility includes a transportation/utility corridor and a mining surface facility. The transportation/utility corridor will consist of an access road, rail line, power line, and utility line. Other proposed actions are a permit area and two borrow areas.

A ground inventory for loggerhead shrike, *Lanius ludovicianus*, creutzfeldt-flower, *Cryptantha creutzfeldtii*, burrowing owls, *Athene cunicularia*, and Canyon sweetvetch, *Hedysarum occidentale* variety *canone* was conducted on May 21, 22, and 26 by employees of EIS. The proposed access/utility corridor and surface facility were inventoried by walking linear transects over the entire area of concern.

**Methodology**

Loggerhead shrike - Burrowing owl

Inventories were conducted between sunrise and 10:00A.M., the period of highest bird activity, on May 21, 22, and 26th. Binoculars and spotting scopes were used to note shrike activities and the entire proposed area was searched for white-tailed prairie dog, (*Cynomys leucurus*) towns. Prairie dog towns are the preferred habitat of burrowing owls. If shrikes were observed, a thorough search of the site was conducted to identify the presence of a nest. Field personnel would also conduct a thorough search of identified prairie dog towns to reveal the presence of on-going or historic burrowing owl activities (scratchings, droppings, tracks, ect.). Habitat present in the proposed area was noted, as was the general topography, weather conditions and general mitigation suggestions.

Canyon sweetvetch - creutzfeldt-flower

Inventories were conducted during sunrise and 3:00P.M. on May 21, 22, and 26<sup>th</sup>. The areas were searched by walking linear transects over the entire area of concern. If target taxa were

located field personnel flagged the location, collected voucher specimens, marked the location on a quad-map, and took a photograph of the plant and habitat. Habitat present in the proposed area was noted, as was the general topography, weather conditions, and general mitigation suggestions.

## Results

### Loggerhead shrike

A thorough search of the area did not reveal the presence of Loggerhead shrikes, though the proposed surface facility area contains suitable shrike habitat.

### Burrowing owl

No burrowing owls were located within any of the proposed area. A thorough search of the area revealed no prairie dog towns and therefore no on-going or historic burrowing owl activity.

### Creutzfeldt-flower

No creutzfeldt-flower was identified in the proposed area although there were several areas of suitable habitat ( Mancos Shale substrate).

### Canyon sweetvetch

Canyon sweetvetch was located in a dry wash located in the south west corner of section 21, Township 16 East, Range 14 East, found on the ----- USGS quad. Approximately 20 plants occurred in this area. The voucher sample was positively identified by qualified BLM staff. This was the only occurrence of *Hedysarum occidentale* in the proposed area.

Recommendations: It is recommended that construction of the transportation/utility corridor minimize sediment loading to the ephemeral stream mentioned. Increased erosion and subsequent sedimentation could possibly impact existing plants or alter future establishment of Canyon sweetvetch. Sediment traps should be employed during road construction. The population of sweetvetch should be monitored annually to assess effects of road, rail line, power line, and utility line construction on Canyon sweetvetch population dynamics.



# Lila Point

Nest N	Map N	Quad Name	Last Year Surveyed	First Year Surveyed	Species	Status	Elevation	Type	Yo	Ag	Eg	UTM Coordinates Nothing	Easting
1.000		Lila Point	1998		Golden Eagl	Old/Dilapit	6800	Cliff	0		0		
2a		Lila Point	1998		Golden Eagl	Old/Dilapit	6700	Cliff	0		0		
2b		Lila Point	1998		Golden Eagl	Inactive*	6700	Cliff	0		0		
3.000		Lila Point	1998		Golden Eagl	Inactive	6800	Cliff	0		0		
4.000		Lila Point	1998		Golden Eagl	Tended	6900	Cliff	0		0		
5.000		Lila Point	1998		Golden Eagl	Tended	7200	Cliff	0		0		
6a		Lila Point	1998		Golden Eagl	Old/Dilapit	7000	Cliff	0		0		
6b		Lila Point	1998		Golden Eagl	Inactive	7000	Cliff	0		0		
7a		Lila Point	1998		Golden Eagl	Inactive	7200	Cliff	0		0		
7b		Lila Point	1998		Golden Eagl	Tended	7200	Cliff	0		0		
7c		Lila Point	1998		Golden Eagl	Tended	7200	Cliff	0		0		
8.000		Lila Point	1998		Golden Eagl	Inactive	6800	Cliff	0		0		
9.000		Lila Point	1998		Unidentified	Inactive	7100	Cliff	0		0		
10.000		Lila Point	1998		Falcon	Inactive	7300	Cliff	0		0		
11.000		Lila Point	1998		Golden Eagl	Active	7200	Cliff	2		0		
12.000		Lila Point	1998		Golden Eagl	Inactive	7300	Cliff	0		0		

\*Corrected from "Tended" to "Inactive" by Derris Jones on July 9, 1998.

**1999 LILA CANYON RAPTOR INVENTORY  
CONDUCTED BY UDWR**

NEST NO.	X	Y	ID	DATE	SPECIES	TYPE	STATUS	EGGS	YNG	AGE	COMMENTS	QUAD
455	556839	4364290	7	05/12/99	Unidentified	Cliff	Old/Dilap	0	0	0	Possible Golden Eagle \$455 - no nest material left	LilaPt
456	556642	4364476	2	05/12/99	Golden Eagle	Cliff	Active	0	99		Hen on nest; couldn't see young	LilaPt
714	555261	4365754	1	05/12/99	Falcon	Cliff	Inactive	0	0	0	Whitewash in evidence, uppermost escarpment	LilaPt
715	551565	4362502	3	05/12/99	Raven	Cliff	Inactive	0	0	0		Cedar
176	551677	4362484	4	05/12/99	Golden Eagle	Cliff	Old/Dilap	0	0	0		Cedar
717	552315	4361770	5	05/12/99	Golden Eagle	Cliff	Active	0	99		Hen on nest; couldn't see young	Cedar
718	553221	4363356	6	05/12/99	Ferruginous Hawk	Ground	Old/Dilap	0	0	0	Historical nest; structure not intact	Cedar
719	557000	4364310	8	05/12/99	Golden Eagle	Cliff	Inactive	0	0	0	Upper level	Cedar



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE  
LINCOLN PLAZA  
145 EAST 1300 SOUTH, SUITE 404  
SALT LAKE CITY, UTAH 84115

In Reply Refer To

(CO/KS/NE/UT)

February 4, 1998

Allyson Traficonte, Engineer  
Environmental Industrial Services  
31 North Main Street  
Helper, Utah 84526

RE: Wildlife, plant, and habitat (TESS) data for the Lila Canyon Area, Emery County, Utah.

Dear Ms. Traficonte:

We have received your letter of January 20, 1998 requesting Threatened, Endangered and Sensitive Species data for a proposed coal mine in the Lila Canyon area. The proposed coal mine lies within Emery County. The project consists of constructing the following: approximately 4.6 miles of new road and railroad; 1.6 miles of power line; and 8.2 miles of water discharge line to the Price River. The study area comprises approximately 47,000 acres.

Currently the following threatened (T), endangered (E), proposed endangered (PE), and candidate (C) species and habitat are found in Emery County. While candidate species have no legal protection under the Endangered Species Act (ESA), we ask that you try to avoid them if they are found in the area.

<u>Species</u>	<u>Scientific name</u>	<u>Status</u>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T
Barneby Reed-mustard	<i>Schoenocrambe barnebyi</i>	E
Black-footed Ferret	<i>Mustela nigripes</i>	E
Bonytail Chub	<i>Gila elegans</i>	E
Colorado Squawfish	<i>Ptychocheilus lucius</i>	E
Humpback Chub	<i>Gila cypha</i>	E
Jones Cycladenia	<i>Cycladenia humilis</i> var. <i>jonesii</i>	T
Last Chance Townsendia	<i>Townsendia aprica</i>	T
Maguire Daisy	<i>Erigeron maguirei</i>	E
Peregrine Falcon	<i>Falco peregrinus</i>	E
Razorback Sucker	<i>Xyrauchen texanus</i>	E
San Rafael Cactus	<i>Pediocactus despainii</i>	E
Winkler Cactus	<i>Pediocactus winkleri</i>	PE
Wright Fishhook Cactus	<i>Sclerocactus wrightiae</i>	E

While most of the above species may not be directly affected by mining, impacts such as subsidence, altered hydrologic flows, and mining effluent may cause significant changes or losses in wildlife habitat, wetlands, riparian areas, stream flows, and water quality. The FWS is concerned about the impacts that mining may have on all wildlife species and their habitat.

Electrocution is a major cause of mortality among raptors. Power line construction should conform with designs established in the following publications: Avian Power Line Interaction Committee's (APLIC), "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994," and, "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996," prepared for the Edison Electric Institute/Raptor Research Foundation, Washington, D.C.

Coal exploration drilling may be needed to evaluate coal quality and quantity. Well pad construction requires clearing vegetation which removes occupied and potential habitat for a variety of wildlife. Construction also fragments contiguous habitat and increases edge habitat. Species populations requiring contiguous habitat decline as the amount of edge habitat increases.

The FWS suggests that wildlife surveys be conducted to determine habitat availability, raptor nest sites, seep locations, etc. so that these areas may be protected. A monitoring program should also be established to help control and identify any additional impacts to wildlife. Mitigation will be required for any loss of habitat resulting from subsidence or seep, spring, or stream flow alterations or depletions.

Coal mine operation may result in subsidence that can cause alterations and changes in ground and surface flows that may result in significant depletion of water to the Colorado River System. Utah State law states that the permittee or lessee will be responsible to replace any surface water that may be lost or adversely affected by mining operations. Water lost from surface flow may enter a ground water aquifer. A water budget analysis would be required to determine if the loss of surface water results in increased ground water outflow and therefore no loss to the Colorado River System. An estimate of the amount of water depleted from the Colorado River System should be made and consultation under Section 7 of the ESA be initiated with the FWS. The FWS recommends that no mining occur within a 22 degree angle-of-draw to any stream for the protection of the river channel, riparian habitat, wetlands, and fish and wildlife species and their habitat.

The proposed coal mine includes a water discharge line into the Price River. A Section 7 consultation under the Endangered Species Act should be initiated with the U.S. Fish and Wildlife Service (FWS). A consultation will be required to determine impact of mine effluent on the Colorado squawfish. Colorado squawfish are known to occur in the Price River up to mile mark 88.

You should review your proposed action and determine if the action would affect any listed species or critical habitat. You should also determine if the action is likely to jeopardize the continued existence of proposed species or result in the destruction or an adverse modification of any critical habitat proposed for such species. If the determination is "may affect" for listed species, you must request in writing formal consultation from the Field Supervisor, at the address

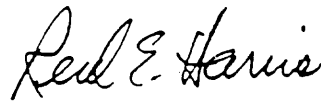
given above. In addition, if you determine that the proposed action is likely to jeopardize the continued existence of proposed species or result in the destruction or adverse modification of proposed critical habitat, you must confer with this office. At that time, you should provide this office a copy of the biological assessment and any other relevant information that assisted you in reaching your conclusion.

The Service can enter into formal Section 7 consultation only with another Federal agency. State, county, or any other governmental or private organizations can participate in the consultation process, help prepare information such as the biological assessment, participate in meetings, etc.

Your attention is also directed to Section 7(d) of the Endangered Species Act, as amended, which underscores the requirement that the Federal agency or the applicant shall not make any irreversible or irretrievable commitment of resources during the consultation period which, in effect, would deny the formulation or implementation of reasonable and prudent alternatives regarding their actions on any endangered or threatened species.

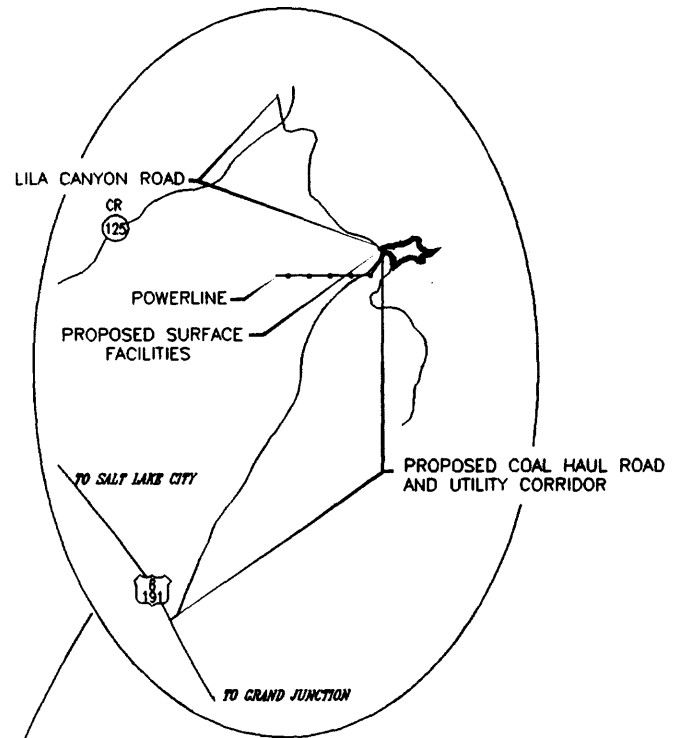
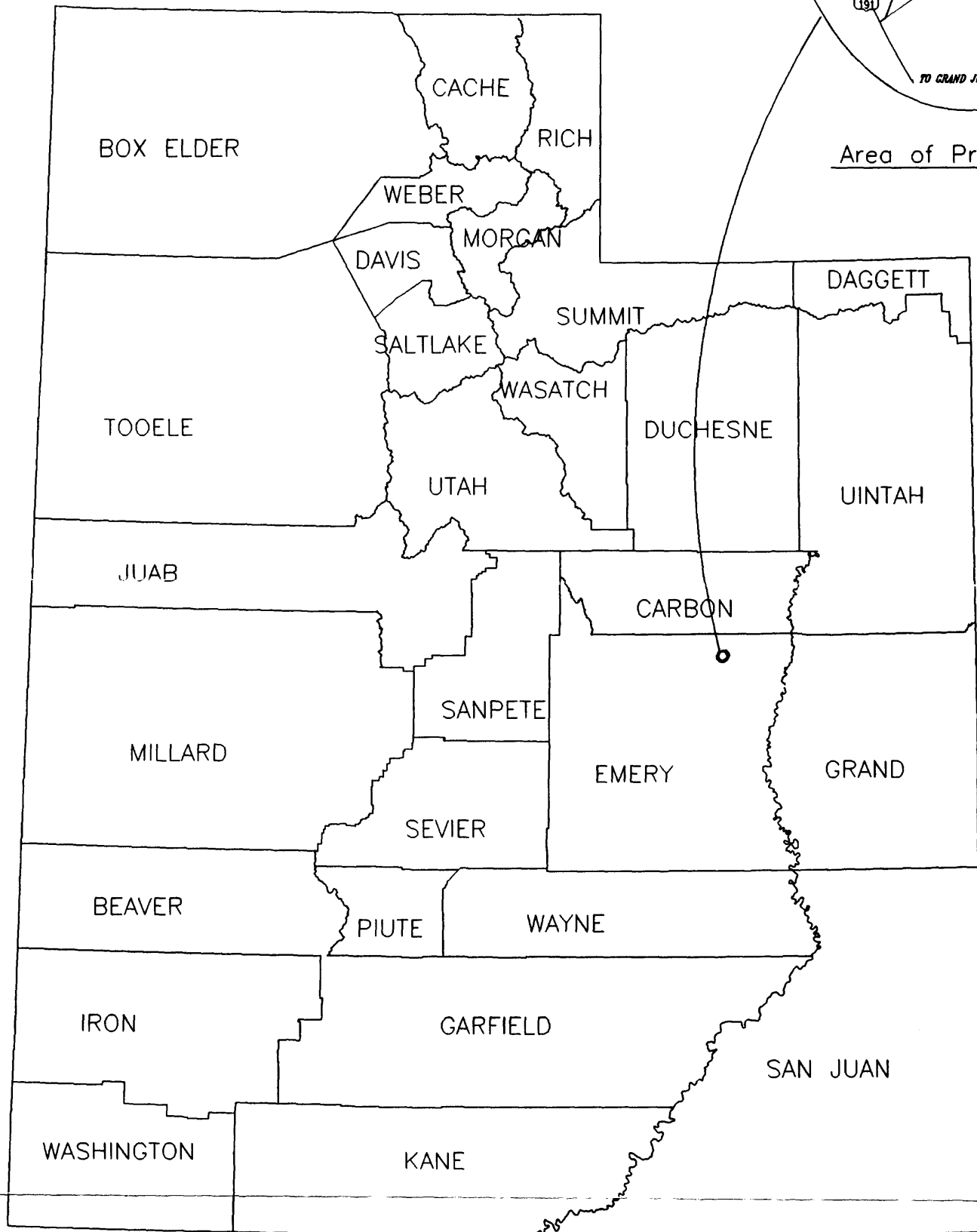
If we can be of further assistance, please feel free to contact Jim Muck in our office at (801)524-5001 ext. 133.

Sincerely,

A handwritten signature in cursive script that reads "Reed E. Harris".

Reed E. Harris  
Utah Field Supervisor

# UTAH



Area of Proposed Action

UTAHAMERICAN ENERGY, INC.

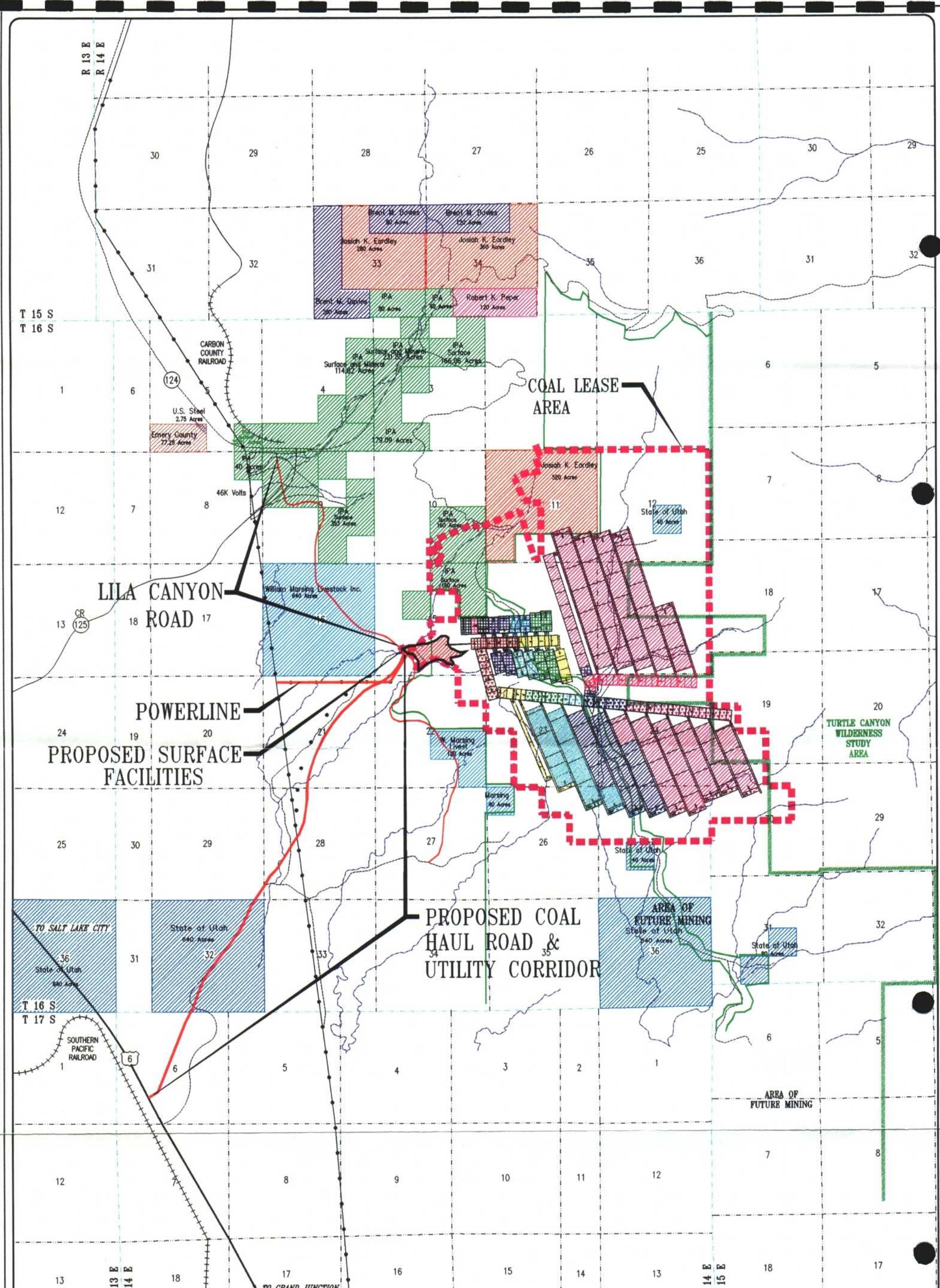


LILA CANYON MINE

## GENERAL LOCATION

DATE: DECEMBER 1999	DESIGNER: ECH
BY: AS SHOWN	PAGE 6 PLATE 1





LEGEND:

ALL LANDS OWNED BY BUREAU OF LAND MANAGEMENT EXCEPT WHERE IDENTIFIED

PERMIT AREA: ---

Emery County	W. Marsing Livestock, Inc.
Brent M. Davies	Robert K. Peper
Josiah K. Eardley	U.S. Steel
Intermountain Power Agency	State of Utah

LEASE:  
SL-066490  
SL-069291

LEGEND:

TURTLE CANYON WILDERNESS STUDY AREA:

DIP:  
 DIP = 100° - 140°

SCALE:  
1000' 0' 2000' 4000'

UTAHAMERICAN ENERGY, INC.

LILA CANYON MINE

PROPOSED ACTION

DATE: DECEMBER 1999

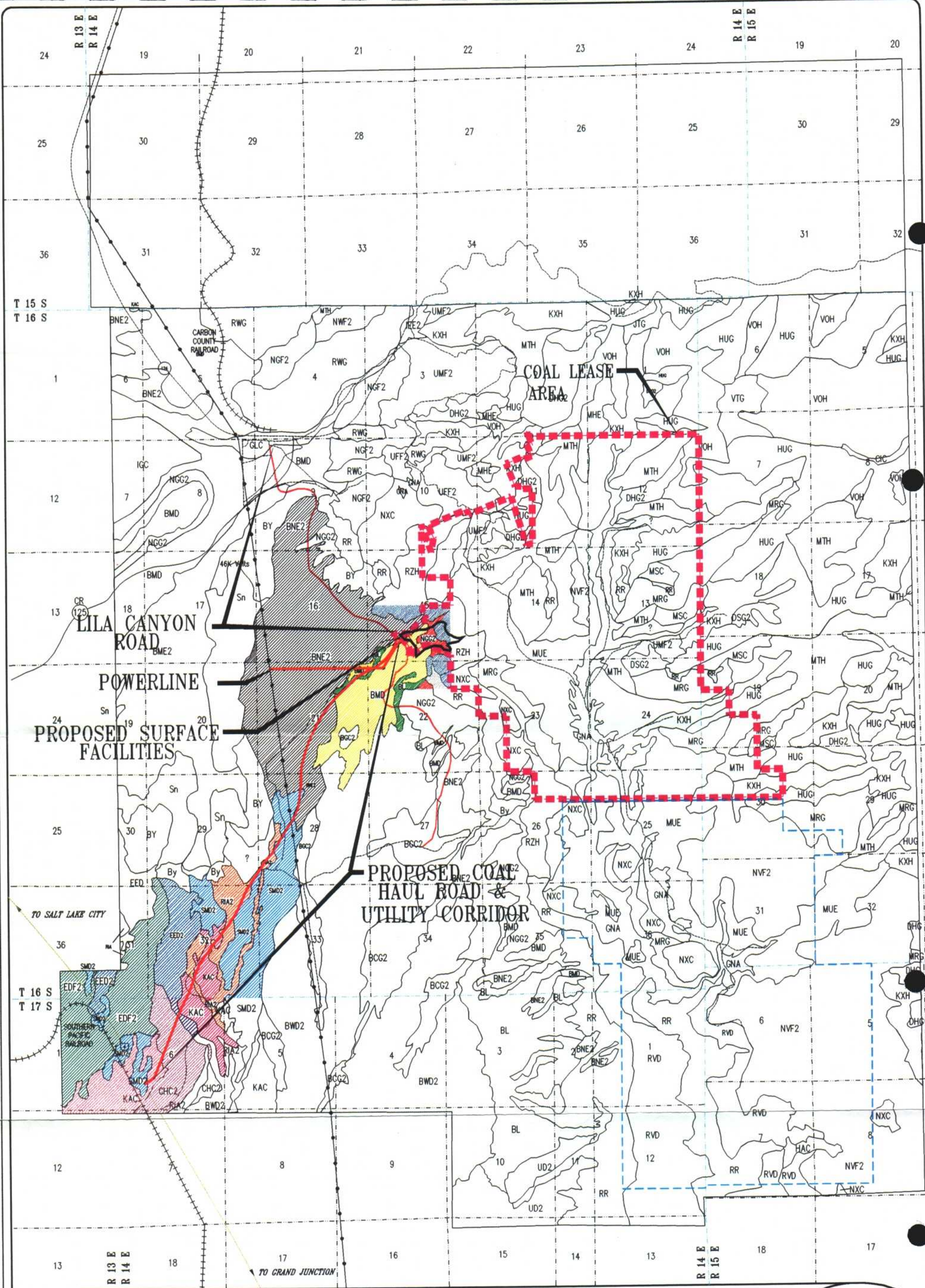
SCALE: AS SHOWN

PLATE II









**SOIL LEGEND:**

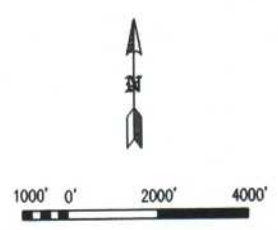
SOILS WITHIN AND ADJACENT TO THE MINE FACILITIES SITE.

- RR ROCK OUTCROP
- NGG2 Gerst-Strych-Badland Complex, 30-70% slopes
- NXC Lazear-Rock outcrop complex, high rainfall, 1 to 8% slopes
- RZH Rock outcrop-Alchee-Rubble land complex
- BMD Strych very stony fine sandy loam, 3-30% slopes
- BL Persao-Chipeta Badland, 3-20% slopes
- BNE2 Strych, very bouldery fine sandy loam, 3-20% slopes

Ref: NRCS, Soil Survey of Emery Area, Utah, in progress, 7/99 update.

**REVISION DATE:**

DATE	BY	REVISION
07-22-99	RCR	



UTAHAMERICAN ENERGY, INC.

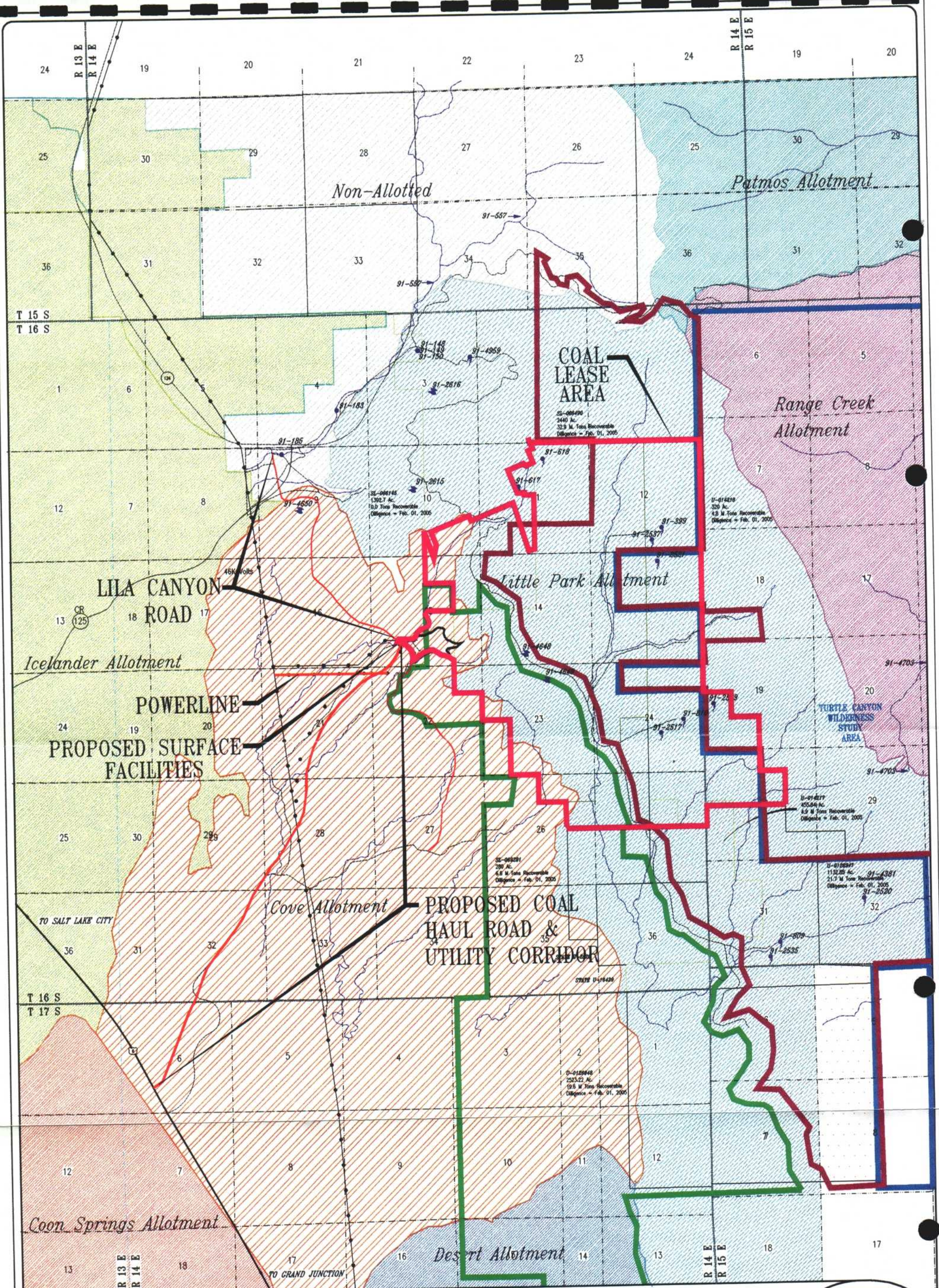


LILA CANYON MINE

**SOILS MAP**

DATE: DECEMBER 1999  
SCALE: AS SHOWN  
PAGE: 6  
PLATE III





**LEGEND:**

TURTLE CANYON INVENTORY UNIT #1

TURTLE CANYON WSA

DESOLATION CANYON INVENTORY UNIT #2

**GRAZING ALLOTMENTS:**

- Little Park Allotment
- Coon Springs Allotment
- Cove Allotment
- Patmos Allotment
- Iceland Allotment

Non-Allotment

Range Creek Allotment

Desert Allotment

**LEGEND:**

Permit Area Bound

**WATER RIGHTS:**

- Water Right Number
- Reservoir Source
- Spring Source
- Reach of Creek
- Underground Source

**REVISION DATE:**

NOV 99	NOV 99
DEC 99	DEC 99
JAN 00	JAN 00
FEB 00	FEB 00
MAR 00	MAR 00
APR 00	APR 00
MAY 00	MAY 00
JUN 00	JUN 00
JUL 00	JUL 00
AUG 00	AUG 00
SEP 00	SEP 00
OCT 00	OCT 00
NOV 00	NOV 00
DEC 00	DEC 00
JAN 01	JAN 01
FEB 01	FEB 01
MAR 01	MAR 01
APR 01	APR 01
MAY 01	MAY 01
JUN 01	JUN 01
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UTAHAMERICAN ENERGY, INC.

LILA CANYON MINE

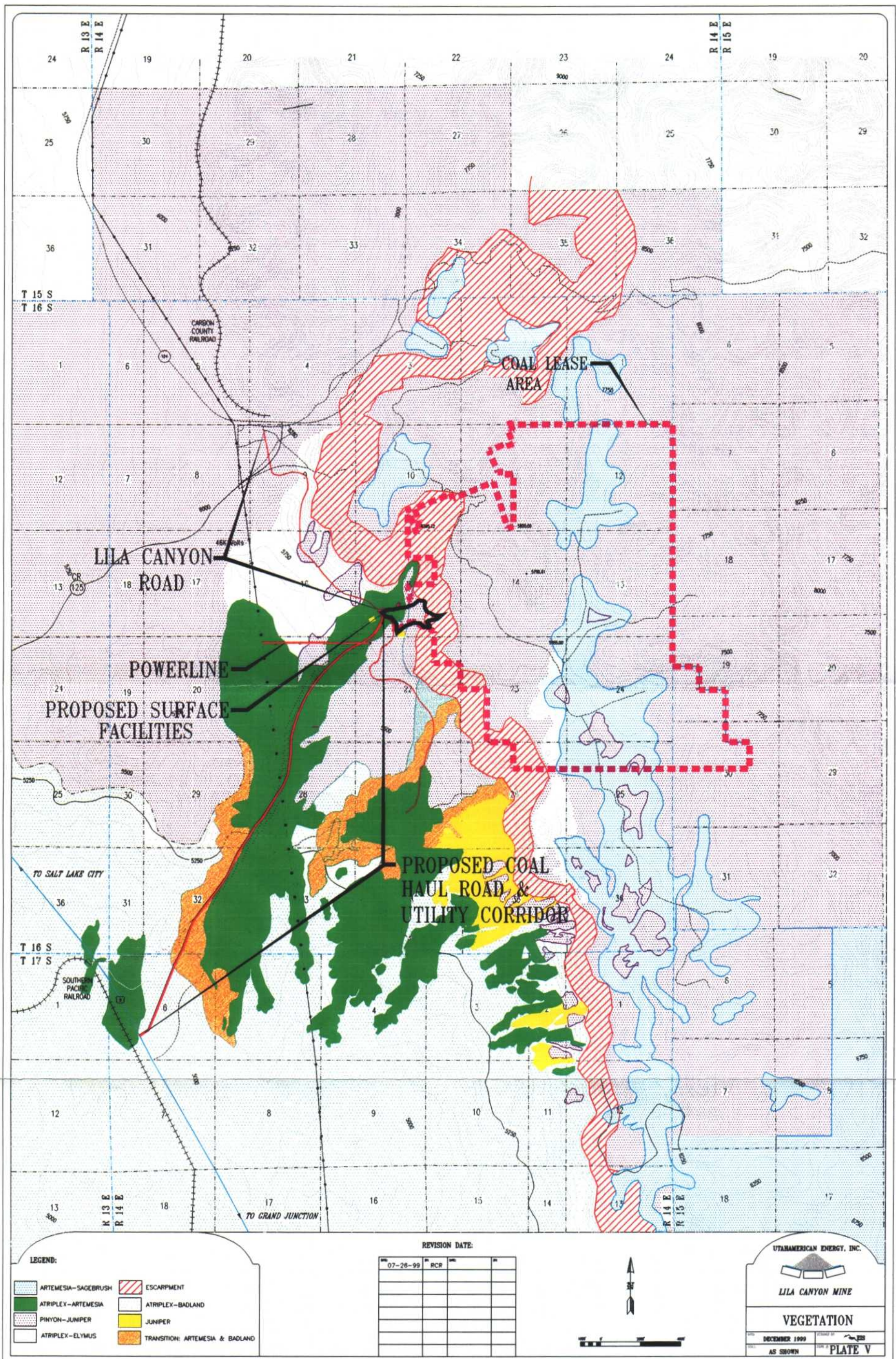
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DECEMBER 1999

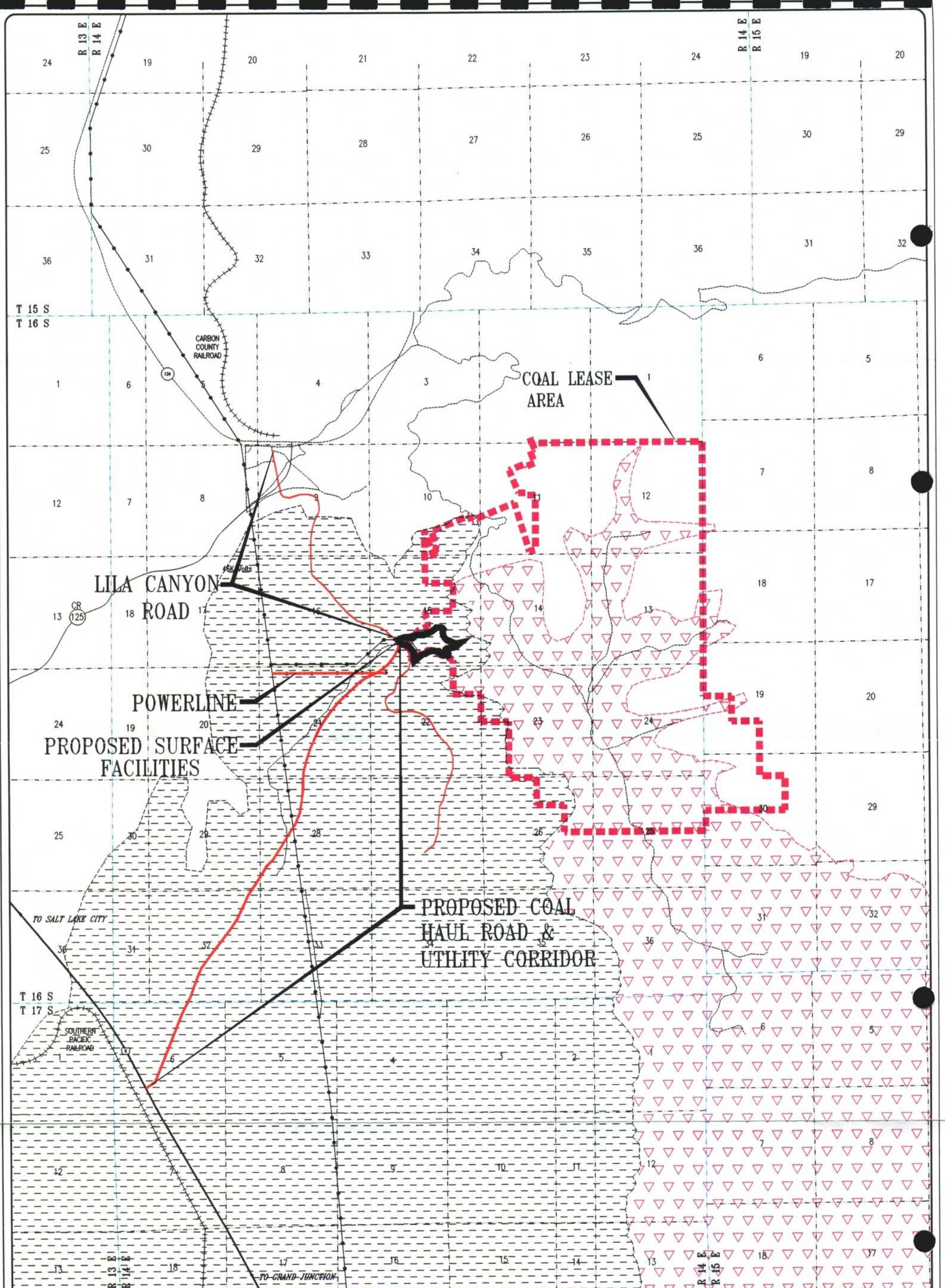
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PLATE IV







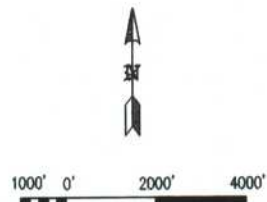


LEGEND:

- Mule Deer Critical Habitat 
- Mule Deer Yearlong Habitat 

REVISION DATE:

REV.	DATE	BY	CHK.



UTAHAMERICAN ENERGY, INC.

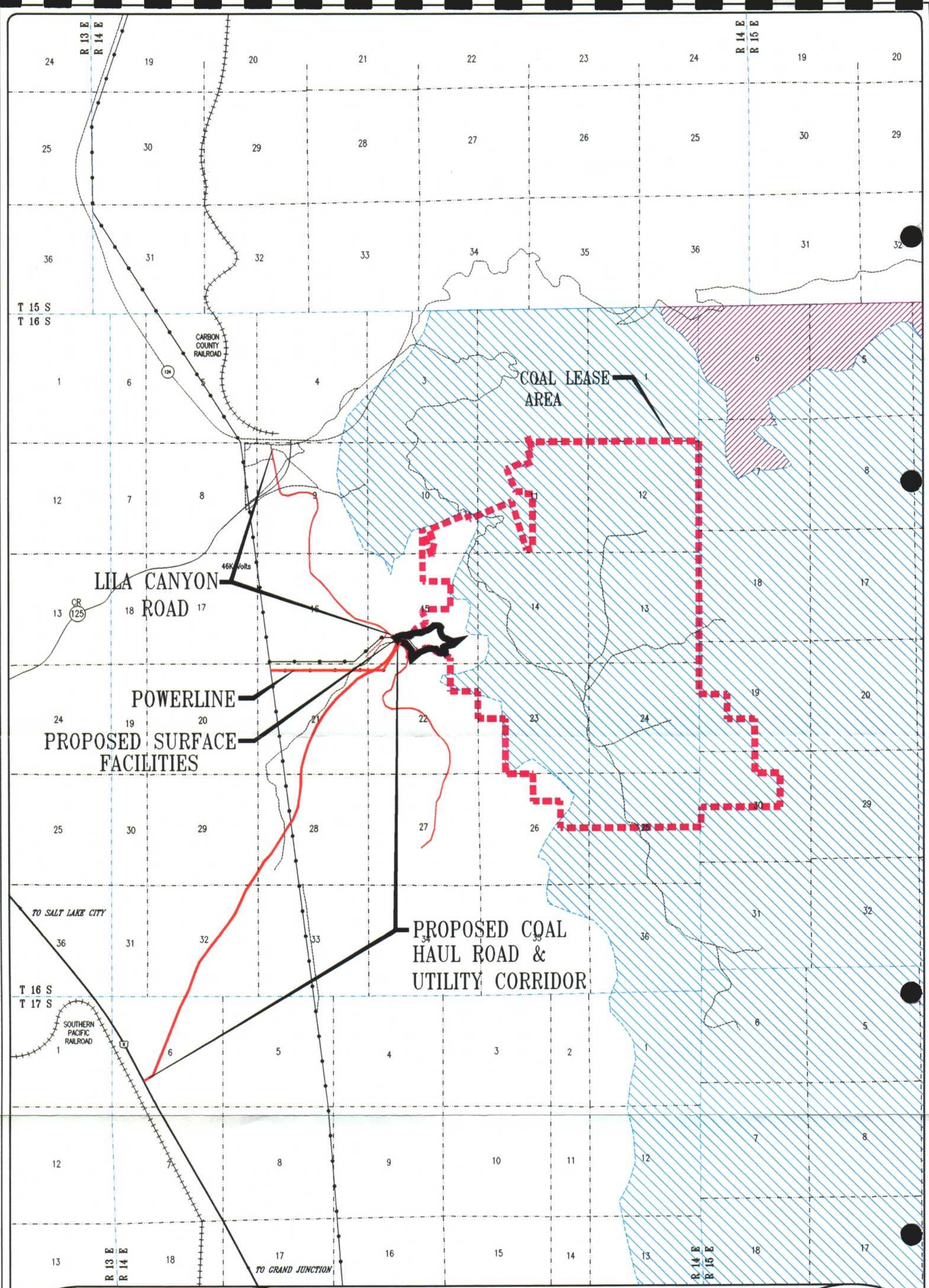


LILA CANYON MINE

WILDLIFE HABITATS  
DEER

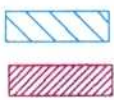
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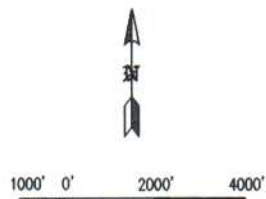
LEGEND:

Elk Winter Habitat  
Elk Summer Habitat



REVISION DATE:

NO.	DATE	BY	CHKD.



UTAHAMERICAN ENERGY, INC.

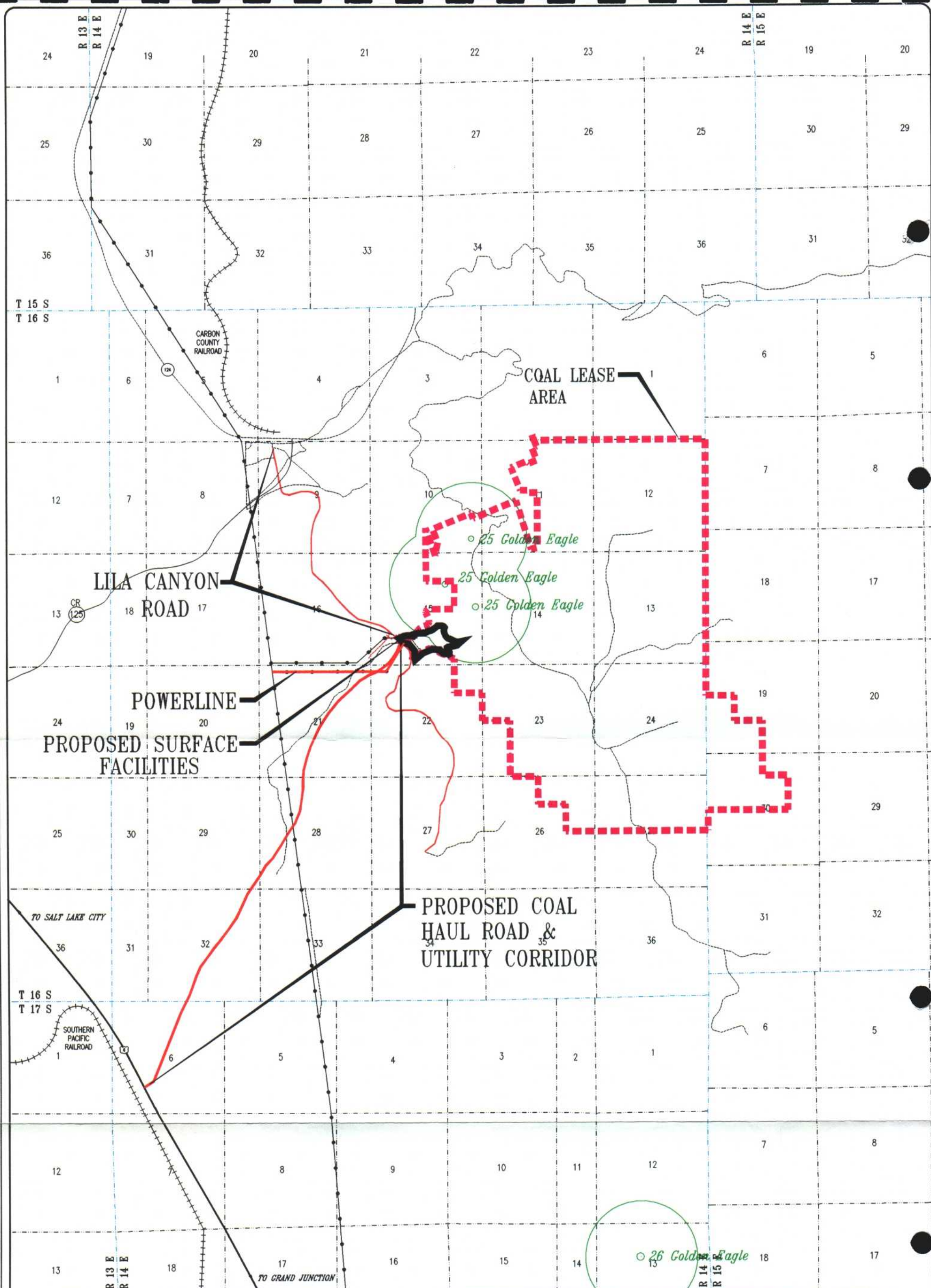


LILA CANYON MINE


WILDLIFE HABITATS  
ELK

DATE: DECEMBER 1999  
BY: [signature]  
SCALE: AS SHOWN  
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PAGE # PLATE VII



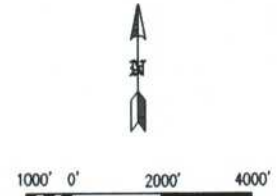


LEGEND:

Golden Eagle Nest ~1/2 mile buffer 

REVISION DATE:

NO.	DATE	BY	REVISION



UTAHAMERICAN ENERGY, INC.



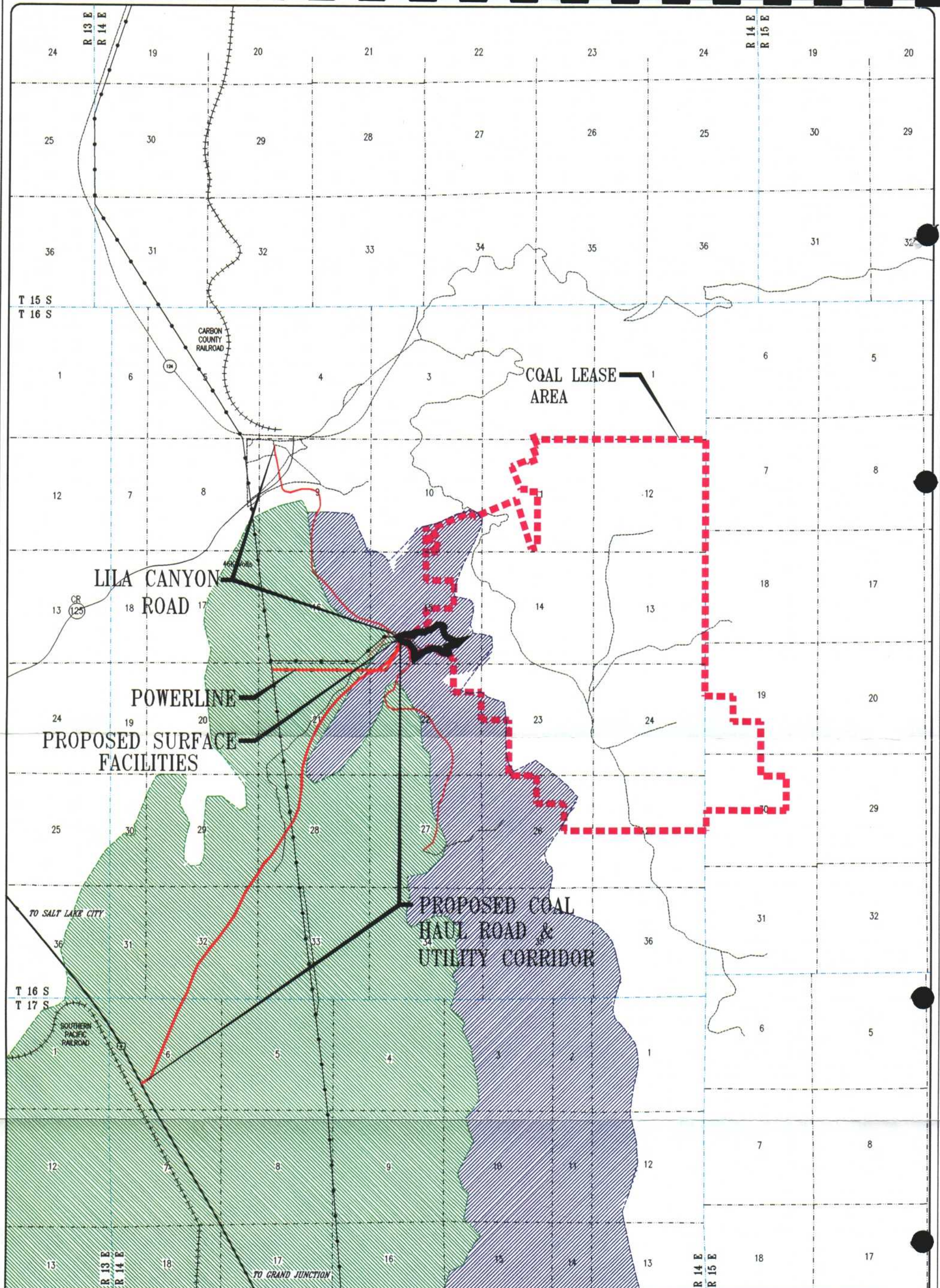
LILA CANYON MINE

WILDLIFE HABITATS  
RAPTORS

DATE: DECEMBER 1999  
SCALE: AS SHOWN

DESIGNED BY: [signature]  
EIS  
PLATE VIII



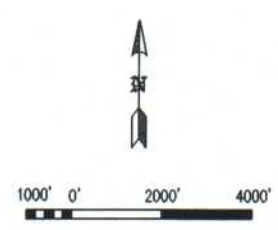


**LEGEND:**

- Rocky Mountain Big Horn Sheep Habitat
- Pronghorn Antelope Yearlong Habitat

REVISION DATE:

DATE	BY	DATE	BY



UTAHAMERICAN ENERGY, INC.

LILA CANYON MINE

WILDLIFE HABITATS  
BIG HORN SHEEP & ANTELOPE

DATE: DECEMBER 1999

REVISION BY: EIS

AS SHOWN

PLATE IX